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CATALOG ISSUE 1968-1969



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THE GRADUATE SCHOOL BULLETIN
MEMPHIS STATE UNIVERSITY

*The fifty-seventh session will open
Friday, September 13, 1968*

CATALOG 1968-1969

MEMPHIS, TENNESSEE

MARCH, 1968

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Inquiries will receive attention if addressed to the administrative offices below at Memphis State University, Memphis, Tennessee 38111.

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Calendar

FIRST SEMESTER 1968-69

SEPTEMBER 13, FRIDAY	Meeting of new members of the University faculty, University Auditorium, 9:00 A.M.
SEPTEMBER 16, MONDAY	Meeting of the entire University faculty, University Auditorium, 9:00 A.M.
SEPTEMBER 16, MONDAY	Meeting of the University faculty by colleges and departments, 2:00 P.M.
SEPTEMBER 18, WEDNESDAY through SEPTEMBER 21, SATURDAY	Registration week. For detailed dates and times see <i>The Schedule of Classes</i> for the Fall Semester, 1968-69.
SEPTEMBER 23, MONDAY	Classes meet as scheduled.
SEPTEMBER 27, FRIDAY	Last day for adding courses.
OCTOBER 4, FRIDAY	Holiday: West Tennessee Education Association.
OCTOBER 14, MONDAY	Last day for dropping courses.
OCTOBER 24, THURSDAY	Last day for making application to dean of The Graduate School for degrees to be conferred in January, 1969.
NOVEMBER 11, MONDAY	Holiday: Veterans' Day.
NOVEMBER 28, THURSDAY through DECEMBER 1, SUNDAY	Thanksgiving recess.
DECEMBER 22, SUNDAY through JANUARY 5, SUNDAY	Christmas recess.
JANUARY 17, FRIDAY	Final examinations begin.
JANUARY 25, SATURDAY	Commencement.

SECOND SEMESTER 1969

FEBRUARY 1, SATURDAY	Registration, The Graduate School, 9:00 A.M.
FEBRUARY 3, MONDAY through FEBRUARY 5, WEDNESDAY	Registration. For detailed dates and times see <i>The Schedule of Classes</i> for the Spring Semester, 1969.
FEBRUARY 6, THURSDAY	Classes meet as scheduled.
FEBRUARY 12, WEDNESDAY	Last day for adding courses.
FEBRUARY 26, WEDNESDAY	Last day for dropping courses.
MARCH 10, MONDAY	Last day for making application to dean of The Graduate School for degrees to be conferred in May, 1969.
APRIL 6, SUNDAY through APRIL 13, SUNDAY	Spring holidays.
MAY 23, FRIDAY	Final examinations begin.
MAY 31, SATURDAY	Commencement

THE SUMMER SESSION, 1969 FIRST TERM

JUNE 8, SUNDAY	Dormitories will open at noon.
JUNE 9, MONDAY and JUNE 10, TUESDAY	Registration. For detailed dates and time see <i>The Schedule of Classes</i> for The Summer Session, 1969.
JUNE 11, WEDNESDAY	Classes meet as scheduled.
JUNE 13, FRIDAY	Last day for adding first-term or second-term courses.
JUNE 17, TUESDAY	Last day for dropping first-term courses.
JUNE 24, TUESDAY	Last day for dropping two-term courses.
JULY 4, FRIDAY	Holiday: Independence Day.
JULY 17, THURSDAY	Final examinations.

SECOND TERM

JULY 21, MONDAY	Registration. For detailed dates and times see <i>The Schedule of Classes</i> for The Summer Session, 1969.
JULY 22, TUESDAY	Classes meet as scheduled.
JULY 23, THURSDAY	Last day for adding second-term courses.
JULY 25, FRIDAY	Last day for making application to dean of The Graduate School for degrees to be conferred in August, 1969.
JULY 28, MONDAY	Last day for dropping second-term courses.
AUGUST 22, FRIDAY	Final examinations.
AUGUST 23, SATURDAY	Commencement.

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PERMANENT MEMBERS

- HERBERT GRAVES ALLBRITTEN, *Associate Professor of Chemistry*
Ph.D. (1951), The Pennsylvania State University.
- HARRY AUSPRICH, *Professor of Speech and Drama*
Ph.D. (1963), Michigan State University.
- HAROLD RAMSEY BANCROFT, *Associate Professor of Biology*
Ph.D. (1962), Mississippi State University.
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Ph.D. (1943), University of Iowa.
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Ph.D. (1955), Harvard University.
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Ph.D. (1948), University of Chicago.
- JERRY NEAL BOONE, *Professor of Psychology*
Ph.D. (1961), Vanderbilt University.
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Ph.D. (1966), Tulane University.
- FRANKLIN OAKES BRANTLEY, *Assistant Professor of Spanish*
Ph.D. (1967), Tulane University.
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Ph.D. (1966), Tulane University.
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Ed.D. (1964), Colorado State College.
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Ph.D. (1951), Iowa State University.
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Ph.D. (1940), University of Madrid.
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Ph.D. (1957), University of North Carolina.
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Ph.D. (1952), University of Texas.
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Ph.D. (1958), Boston University.
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Ph.D. (1964), Rice University.

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Ph.D. (1952), University of Kentucky.

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Ed.D. (1952), Teachers College, Columbia University.

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M.S. (1938), Kansas State University.

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Ph.D. (1966), University of Florida.

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M.B.A. (1965), Memphis State University; C.P.A. (1965), Tennessee.

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Ed.D. (1962), University of Mississippi.

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Ph.D. (1962), The Ohio State University.

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Ed.D. (1956), University of Mississippi.

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M.A. (1946), Northwestern University.

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Ph.D. (1954), University of North Carolina.

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M.S. (1951), University of Kentucky; C.P.A. (1965), Tennessee.

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Ph.D. (1951), University of Texas.
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M.M. (1947), Northwestern University.
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- JAMES CLIFFORD HODGETTS, *Professor of Management*
Ph.D. (1954), University of North Dakota.
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Ph.D. (1947), University of Tennessee.
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- ELMO H. HOWELL, *Professor of English*
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Ph.D. (1959), University of Alabama.
- CHARLES CARROLL IJAMS, *Professor of Physics*
Ph.D. (1941), Vanderbilt University.
- RIENZI WILSON JENNINGS, *Professor of Secretarial Science and Office Management*
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- SAM HOWARD JOHNSON, *Professor of Education, Dean of The College of Education*
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- HOWARD S. KALTENBORN, *Professor of Mathematics*
Ph.D. (1934), University of Michigan.

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Ed.D. (1960), Colorado State College.

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FRANK CRAGG LEEMING, *Associate Professor of Psychology*
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*On leave of absence, 1967-68

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ALFRED EUGENE PERRY, *Assistant Professor of Biology*
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ELIZABETH CROW PHILLIPS, *Professor of English*
Ph.D. (1953), University of Tennessee.

GERALD SWETNAM PIERCE, *Associate Professor of History*
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Ph.D. (1955), Purdue University.

*BASIL RATIU, *Associate Professor of French*
Ph.D. (1960), Columbia University.

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Ed.D. (1960), University of Cincinnati.

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Ed.D. (1957), New York University.

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Ph.D. (1962), University of Illinois.

*On leave of absence, 1967-68

- JOSEPH RAYMOND RILEY, *Associate Professor of English*
Ph.D. (1962), Vanderbilt University.
- CHARLES NELSON ROBINSON, *Professor of Chemistry*
Ph.D. (1953), University of Tennessee.
- HEBER ELIOT RUMBLE, *Professor of Education*
Ph.D. (1943), University of Illinois.
- DEVOY A. RYAN, *Professor of Educational Administration*
Ed.D. (1953), University of Missouri.
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- RITA SAWYER, *Associate Professor of Education*
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- FRANK B. SCHIRMER, JR., *Professor of Chemistry*
Ph.D. (1939), Cornell University.
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P.E.D. (1954), Indiana University.
- AARON PRESLEY SEAMSTER, *Professor of Biology, Assistant Provost of the University*
Ph.D. (1948), Notre Dame University.
- WILLIAM RODRICK SEWELL, *Assistant Professor of Psychology*
Ph.D. (1967), University of Alabama.
- PAUL HARDEMAN SISCO, *Professor of Geography*
Ph.D. (1954), University of Chicago.
- JOHANNES SMIT, *Associate Professor of Music*
Ph.D. (1953), Eastman School of Music, University of Rochester.
- ALFRED WINN SMITH, *Professor of English*
Ph.D. (1954), George Peabody College.
- OMAR EWING SMITH, *Associate Professor of Biology*
Ph.D. (1961), Iowa State University.
- WALTER RHEA SMITH, *Professor of English, Dean of The College of Arts and Sciences*
Ph.D. (1951), University of California.
- WILL DUNN SMITH, *Professor of Education*
Ph.D. (1952), George Peabody College.
- ROBERT ANDREW SNYDER, *Professor of Music*
D.M. (1958), Indiana University.
- JOHN A. SOBOL, *Associate Professor of Geography*
Ph.D. (1961), University of Michigan.
- WILLIAM H. SPELL, JR., *Associate Professor of Chemistry*
Ph.D. (1961), University of Arkansas.

- JESSE WATSON SPICELAND, *Professor of Accountancy*
M.S.B.A. (1948), Washington University; C.P.A. (1951), Tennessee.
- SILVIO JOSEPH SPIGOLON, *Professor of Engineering*
Ph.D. (1963), University of Illinois.
- CHARLES ROBERT SPINDLER, *Professor of Marketing*
M.A. (1942) University of Iowa.
- LOUIS CHARLES STAGG, *Assistant Professor of English*
Ph.D. (1963), University of Arkansas
- HAROLD W. STEPHENS, *Professor of Mathematics*
Ed.D. (1964), Columbia University.
- CALVIN MOORMAN STREET, *Professor of Education*
Ed.D. (1953), University of Tennessee.
- HARRY HARMON SUMMER, *Professor of Marketing*
Ph.D. (1965), University of Illinois.
- LUCILLE BUTLER TAYLOR, *Associate Professor of Education*
Ed.D. (1964), Syracuse University.
- CHARLES LAMAR THOMPSON, *Associate Professor of Education*
Ed.D. (1963), University of Southern Mississippi.
- JAMES THOMAS THOMPSON, *Professor of Accountancy*
M.B.A. (1949), Indiana University; C.P.A. (1960), Tennessee.
- RODNEY TILLMAN, *Professor of Education*
Ed.D. (1955), Teachers College, Columbia University.
- JAMES MCNELLY TODD, *Associate Professor of Management*
Ph.D. (1966), University of Texas.
- WAYLAND A. TONNING, *Professor of Marketing*
Ph.D. (1959), University of Illinois.
- AGNES ANNE TROTTER, *Assistant Professor of History*
Ph.D. (1965), Duke University.
- DAVID MILTON TUCKER, *Assistant Professor of History*
Ph.D. (1965), University of Iowa.
- ROBERT N. VIDULICH, *Professor of Psychology*
Ph.D. (1958), Michigan State University.
- FESTUS JUSTIN VISER, *Professor of Economics*
Ph.D. (1958), New York University.
- WALTER WILSON WADE, *Professor of Music*
Ph.D. (1958), Northwestern University.
- DAVID TUTHERLY WALKER, *Professor of Mathematics*
Ph.D. (1955), University of Georgia.
- *ROBERT FRANCIS WATSON, *Associate Professor of Chemistry*
Ph.D. (1963), University of Tennessee.

*On leave of absence, 1967-68

BRADFORD WHITE, *Professor of Speech and Drama*
M.F.A. (1939), Yale University.

HELEN WHITE, *Associate Professor of English*
Ph.D. (1958), George Peabody College.

LONNIE J. WHITE, *Professor of History*
Ph.D. (1961), University of Texas.

WALTER E. WILHELM, *Assistant Professor of Biology*
Ph.D. (1964), Southern Illinois University.

MAJOR LOYCE WILSON, *Associate Professor of History*
Ph.D. (1964), University of Kansas.

BYRON HOOPER WISE, *Assistant Professor of Biology*
Ph.D. (1962), University of Florida.

MARY WITT, *Associate Professor of Education*
Ed.D. (1954), George Peabody College.

SEOK PIN WONG, *Assistant Professor of Mathematics*
Ph.D. (1967), University of Illinois.

ALBERT HAINES WOOLLETT, *Assistant Professor of Physics*
Ph.D. (1956), University of Oklahoma.

TZE SUN WU, *Professor of Engineering*
Ph.D. (1952), University of Illinois.

LAWRENCE WYNN, *Professor of English*
Ph.D. (1951), Princeton University.

ASSOCIATE MEMBERS

DIMITRIOS C. AGOURIDIS, *Associate Professor of Engineering*
Ph.D. (1966), University of Minnesota.

OTILIE AMMINGER, *Assistant Professor of Engineering*
D.Sc. (1952), Technical Institute of Vienna.

WILLIAM LEO AMMINGER, *Professor of Engineering*
Ph.D. (1964), Washington University.

JOHN PAUL BAKKE, *Associate Professor of Speech and Drama*
Ph.D. (1966), University of Iowa.

JOHN P. BEIFUSS, *Associate Professor of English*
Ph.D. (1964), Loyola University (Chicago).

JOHN LAURENCE BERNARD, *Associate Professor of Psychology*
Ph.D. (1962), University of Alabama.

HARRY EDWARD BOYD, *Associate Professor of Education Administration*
Ph.D. (1967), Southern Illinois University.

WESTON TERRELL BROOKS, *Associate Professor of Technology*
Ed.D. (1964), Texas A&M University.

- KENNETH LEE BURCH, *Assistant Professor of Education*
Ed.D. (1966), Indiana University.
- JAMES ALAN COLLIER, *Professor of Insurance*
Ph.D. (1966), University of Wisconsin.
- BOB COLSTON, *Instructor in Health, Physical Education, and Recreation*
P.E.D. (1954), Indiana University.
- DARRELL CRASE, *Assistant Professor of Health, Physical Education, and Recreation*
Ph.D. (1966), The Ohio State University.
- ARTHUR JOHN CROWNS, JR., *Associate Professor of Sociology*
Ph.D. (1965), Florida State University.
- PHILI B. DEBOO, *Associate Professor of Geology*
Ph.D. (1963), Louisiana State University.
- ROBERT WADE DEININGER, *Associate Professor of Geology*
Ph.D. (1964), Rice University.
- THOMAS ORLANDO DEPPERSCHMIDT, *Professor of Economics*
Ph.D. (1965), University of Texas.
- MARIE EUNICE DUBKE, *Associate Professor of Accountancy*
Ph.D. (1961), Michigan State University; C.P.A. (1960), Michigan.
- FAITH HARRIET EIKAAS, *Associate Professor of Sociology*
D.S. Sc. (1958), Syracuse University.
- JOHN WILLIAM EILERT, *Associate Professor of Economics*
Ph.D. (1963), University of Illinois.
- JOONG FANG, *Associate Professor of Mathematics and Philosophy*
Ph.D. (1957), University of Mainz.
- WOODROW FLANARY, *Associate Professor of Education*
Ed.D. (1954), University of Virginia.
- EFRIM FRUCHTMAN, *Associate Professor of Music*
Ph.D. (1954), University of North Carolina.
- JOHN WILKES FUSSELL, *Assistant Professor of Education*
Ed.D. (1955), University of Houston.
- HARRY WILBUR GAY, *Professor of Music*
D.M. (1954), Indiana University.
- LEWIS WILLIAM GODLOVE, *Assistant Professor of Education*
Ed.D. (1961), University of Mississippi.
- JAMES THOMAS GOODWIN, *Assistant Professor of Biology*
Ph.D. (1968), University of Tennessee.
- BOBBY GENE GREER, *Assistant Professor of Special Education*
Ph.D. (1965), University of Texas.

PRADIP KUMAR SEN GUPTA, *Assistant Professor of Geology*
Ph.D. (1964), Washington University.

RAYMOND ELLIS HARTLEY, *Professor of Psychology*
Ph.D. (1952), University of Chicago.

MICHAEL J. HARVEY, *Assistant Professor of Biology*
Ph.D. (1967), University of Kentucky.

HERBERT ALLEN HERMANN, *Associate Professor of Music*
D.M. (1962), Indiana University.

GIBSON W. HIGGINS, *Assistant Professor of Chemistry*
Ph.D. (1966), Georgia Institute of Technology.

WILLIAM HENRY HOWICK, *Associate Professor of Education*
Ph.D. (1963), George Peabody College.

THOMAS MEARS HUGHES, *Assistant Professor of Education*
Ph.D. (1967), University of Arkansas.

LEMELY DAVID HUTT, JR., *Assistant Professor of Psychology*
Ph.D. (1967), University of Arkansas.

WILLIAM HOWARD JERMANN, *Assistant Professor of Engineering*
Ph.D. (1967), University of Connecticut.

ALBERT EDWARD JOHNSON, *Professor of Speech and Drama*
Ph.D. (1948), Cornell University.

DONALD PETER JOHNSTON, *Associate Professor of Education*
Ed.D. (1962), New York University.

BERKLEY KALIN, *Assistant Professor of History*
Ph.D. (1967), St. Louis University.

TROY WILBERT KELLY, *Associate Professor of Educational Administration*
Ph.D. (1966), Southern Illinois University.

EDWIN MURRAY LABOUNTY, *Associate Professor of Music*
D.M. (1962), Indiana University.

JOSEPH STANLEY LASKI, *Associate Professor of Management*
Ph.D. (1965), American University.

CHARLES JOSEPH LONG, *Assistant Professor of Psychology*
Ph.D. (1966), Vanderbilt University.

FRANKLIN CORDELL LOWE, *Assistant Professor of Accountancy*
M.B.A. (1960), University of Mississippi; C.P.A. (1965), Mississippi.

DAVID NORMAN LUMSDEN, *Assistant Professor of Geology*
Ph.D. (1965), University of Illinois.

DANIEL WILLIS LYNCH, *Associate Professor of Economics*
Ph.D. (1965), University of Kentucky.

RAYMOND MARTIN LYNCH, *Associate Professor of Music*
D.M. (1965), University of Michigan.

- WILMER EVERETT MACNAIR, *Associate Professor of Sociology*
Ph.D. (1965), University of Wisconsin.
- ROBERT E. MAGOWAN, *Assistant Professor of Technology*
Ed.D. (1967), Texas A&M University.
- EDWARD DONALD MCDANIEL, *Assistant Professor of Education*
Ed.D. (1963), University of Alabama.
- JACK E. MILLER, *Assistant Professor of Educational Administration*
Ed.D. (1963), University of Oklahoma.
- KELL FREEMAN MITCHELL, JR., *Assistant Professor of History*
Ph.D. (1966), University of Georgia.
- BELA MUKHOTI, *Assistant Professor of Economics*
Ph.D. (1964), University of London.
- SANTIRANJAN MUKHOTI, *Assistant Professor of Mathematics*
Ph.D. (1965), University of London.
- HARWOOD F. MULLIKIN, *Professor of Engineering*
Ph.D. (1934), Yale University.
- RICHARD B. O'CONNELL, *Professor of German*
Ph.D. (1951), University of Minnesota.
- MICHAEL McDONALD OSBORN, *Associate Professor of Speech and Drama*
Ph.D. (1963), University of Florida.
- GEORGE D. OSBORNE, *Assistant Professor of Music*
M.M. (1964), Indiana University.
- HERMAN F. PATTERSON, *Associate Professor of Business Education*
Ed.D. (1967), Colorado State College.
- HENRY HALL PEYTON, III, *Associate Professor of English*
Ph.D. (1967), Brown University.
- MILTON W. PHILLIPS, JR., *Assistant Professor of Educational Administration*
Ed.D. (1967), University of Tennessee.
- MERRILL MOSELEY POWELL, *Assistant Professor of Education*
Ed.D. (1966), University of Alabama.
- GABRIEL PERRY RACZ, *Professor of Economics and Finance*
Ph.D. (1942), University of Budapest.
- LETICIA GAYLE RAYBURN, *Associate Professor of Accountancy*
Ph.D. (1966), Louisiana State University; C.P.A. (1962), Mississippi.
- JOHN JOSEPH REID, *Associate Professor of Economics*
Ph.D. (1962), University of Virginia.
- JOSEPH SELWYN ROSEN, *Professor of Mathematics*
Ph.D. (1936), Washington University.

PRISCILLA RUSHTON, *Assistant Professor of Biology*
Ph.D. (1966), Emory University.

EUGEN SCHOENFELD, *Assistant Professor of Sociology*
Ph.D. (1967), Southern Illinois University.

WILLIAM SCHRIVER, *Associate Professor of Sociology*
Ph.D. (1964), University of Tennessee.

STANLEY RAY SCHULTZ, *Professor of Economics*
Ph.D. (1960), The Ohio State University.

GEORGE WAYNE SHAMO, *Assistant Professor of Speech and Drama*
Ph.D. (1967), Southern Illinois University.

THOMAS DEWEY SHOCKLEY, JR., *Professor of Engineering*
Ph.D. (1963), Georgia Institute of Technology.

BILL AL SIMCO, *Assistant Professor of Biology*
Ph.D. (1966), University of Kansas.

CARL DAVID SLATER, *Associate Professor of Chemistry*
Ph.D. (1960), The Ohio State University.

JANE STEGEMANN, *Associate Professor of English*
Ph.D. (1961), University of Pennsylvania.

VAUGHN ELDEN STIMBERT, *Assistant Professor of Psychology*
Ph.D. (1967), Florida State University.

MIRIAM DECOSTA SUGARMON, *Assistant Professor of Spanish*
Ph.D. (1967), Johns Hopkins University.

GEORGE WILLIAM TATE, JR., *Assistant Professor of Biology*
Ph.D. (1967), Louisiana State University.

CHARLES E. TEMPLETON, *Assistant Professor of Accountancy*
M.A. (1962), Memphis State University; C.P.A. (1954), Tennessee.

DONALD RICKHART THOMSEN, *Associate Professor of Educational Administration*
Ed.D. (1956), University of Florida.

JOHN OLIVER THOMSON, *Associate Professor of Physics*
Ph.D. (1956), University of Illinois.

ALICIA C. TILLEY, *Assistant Professor of Education*
Ed.D. (1968), University of Illinois.

ANTONIO SERAFIM VASCONCELLOS, *Assistant Professor of Economics*
B.A. (1950), University of California.

LAURENCE GRAVES WALKER, *Assistant Professor of Geology*
Ph.D. (1967), Harvard University.

JEANNETTE POOLE WARD, *Assistant Professor of Psychology*
Ph.D. (1967), Vanderbilt University.

THAYER HOWARD WATKINS, *Associate Professor of Economics*
Ph.D. (1965), University of Colorado.

DONALD ROGER WELLS, *Associate Professor of Economics*
Ph.D. (1965), University of Southern California.

JAMES CALDWELL WILLIAMS, *Assistant Professor of Chemistry*
Ph.D. (1964), University of Missouri.

RALPH WHITSON WILLIAMS, *Associate Professor of Management*
D.B.A. (1966), University of Oregon.

ROY H. WILLIAMS, *Associate Professor of Management*
Ph.D. (1967), University of Alabama.

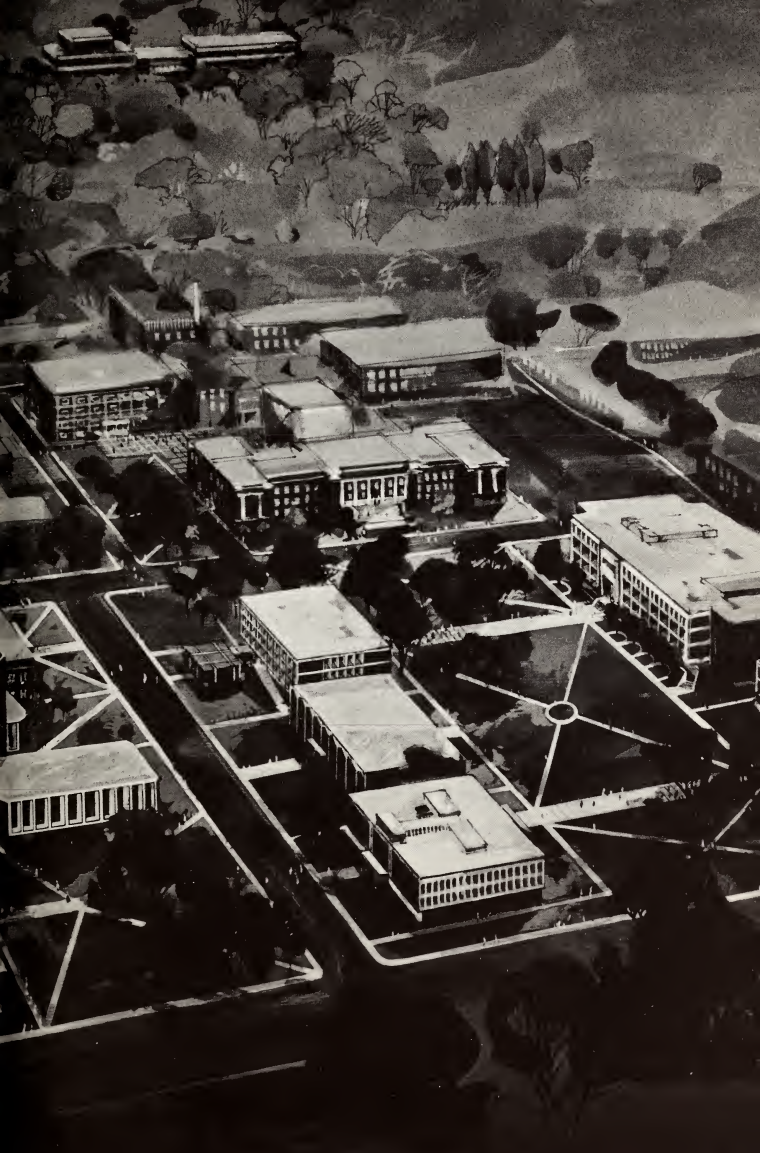
CHARLES NEAL WISE, *Assistant Professor of Speech and Drama*
Ph.D. (1966), University of Oklahoma.

ROSESTELLE BACH WOOLNER, *Assistant Professor of Education*
Ed.D. (1966), University of Tennessee.

ARTHUR L. YEHLE, *Assistant Professor of Psychology*
Ph.D. (1966), University of Miami.

WILLIAM HENRY ZUBER, JR., *Assistant Professor of Chemistry*
Ph.D. (1964), University of Kentucky.

An expanding University campus (opposite page) features modern buildings and the newly-formed Mall in front of the Administration Building.



General Information

Objectives of The Graduate School.

The Graduate School of Memphis State University is the center of advanced study and research within the University. The basic objectives of The Graduate School are (a) to preserve and disseminate knowledge now available in the humanities, the sciences, and the various professional areas represented by the various departmental graduate faculties; (b) to extend knowledge through basic research; and (c) to prepare men and women to assume a more responsible and useful role in society.

The University operates on the semester system. The official calendar on page 5 shows dates for registration and the beginning of course work.

Three schedules, each carrying proportionate residence credit, are operated in the Fall and Spring semesters: one for full-time students, one for students who can attend classes only in the evening, and one for students who can attend classes only on Saturday.

Organization of The Graduate School.

The Graduate School is under the direction of The Graduate Council. The Council is composed of the President of the University, the Dean of The Graduate School, the Chairman of each department offering a graduate major, and a departmental representative for each department offering graduate courses. The Executive Committee of The Graduate Council and The Graduate Dean are empowered to make decisions within the policies approved by The Graduate Council. Three members of the Executive Committee are elected by the Council and three are appointed by the University President.

Students admitted to The Graduate School are responsible to The Graduate Council through the Executive Committee and the Dean of The Graduate School. Permanent and associate members of the Graduate Faculty may act as major or collateral area advisers to students in their respective departments.

Administration Building.

The first academic building on the campus was completed in 1912; it has been enlarged and remodeled several times and is completely air conditioned. It houses many of the administrative offices of the University and contains classrooms and office space for several departments in The College of Arts and Sciences. The Academic Computer Center is also located in this building.

Manning Hall.

Built in 1930 and named in honor of the University's first instructor in science, Priestly Hartwell Manning, this hall provides the departments of Physics and Home Economics with classrooms, offices, laboratories, a science auditorium, and faculty and graduate research facilities.

Johnson Hall.

Completed in 1958, it is named in honor of Dr. Rayburn W. Johnson, Professor Emeritus of Geography, and his late wife, Ethel B. Johnson. Air conditioned throughout, it contains classrooms, laboratories, offices, a map library, a conference room, and an auditorium for the departments of Geography and Psychology. The map library, a depository for the Army Map Service, Washington, D. C., contains over 10,000 maps. On the ground floor is the Ethel B. Johnson Reception Room, dedicated to the use of the Memphis State University Faculty Wives Club.

Jones Hall.

Named in honor of Otis Henry Jones, University bursar from 1925 to 1937, it was completed in 1960 and enlarged in 1964. It is completely air conditioned and provides classroom and office space for the departments of Aerospace Studies, Art, Classical Languages, and Modern Languages (with an electronic language laboratory). It also houses the University Post Office.

The College of Business Administration Building.

A four-story, air-conditioned structure with an adjoining auditorium, it contains administrative offices, classrooms, laboratories, and offices for the departments of Accountancy, Economics and Finance, Management, Marketing, and Secretarial Science and Office Management.

Industrial Technology Building.

Built in 1941, and enlarged in 1946 and 1960, it provides classrooms, offices, and extensive laboratory facilities for drafting, surveying, woodworking, metal-working, ceramics, and general shop practices.

Memphis State University Campus School.

Operated in cooperation with the Board of Education of the City of Memphis, it provides air-conditioned facilities for training student teachers and opportunities for observing good teaching

procedures. In addition to regular classrooms it features flexible spaces, learning cubicles, one-way observation glass, sound controls, connections for television broadcasts and reception, and modern facilities to meet the needs of modern public school teaching. These facilities are also utilized in faculty and graduate demonstration, research and experimental projects.

The Field House.

Built in 1951 and enlarged in 1958 and 1964, it contains basketball courts, gymnasiums, classrooms, a stage, seats for 4000, and offices for the Department of Health, Physical Education and Recreation and for athletics.

The Buford Ellington Biological Sciences Building.

Named in honor of the governor of Tennessee, it is an air conditioned building containing classrooms, laboratories, specimen areas, research facilities, and an auditorium.

The College of Education Building.

An air-conditioned structure also completed in 1964, it houses the administrative and faculty offices of The College of Education as well as general and special classrooms, laboratory and research areas (including a curriculum laboratory), and an auditorium. The Herff College of Engineering, the offices of the State Board of Education, and the University of Tennessee Graduate Program, are also located in this building.

The Frank G. Clement Humanities Building.

Named in honor of the former governor of Tennessee, located on the west side of the Mall, it was completed in 1966. An air-conditioned office and classroom building, it houses the departments of Sociology and Anthropology, Philosophy, and Political Science, plus a portion of the History and the English staff.

The J. Millard Smith Chemistry Building.

Also completed in 1966, and named in honor of the President Emeritus of the University, it is located to the east of the Mall and is adjacent to Walker Avenue. In addition to the department of Chemistry, it also houses a portion of the Department of Mathematics.

The School of Law Building.

Completed in early 1967, it is located on Central Avenue in the new north campus area. This building houses the Law Library in addition to offices, classrooms, and service areas for the staff and students of The School of Law.

Fine Arts Complex, Phase I.

Consisting of the Speech and Drama and the Music units, it is located on Central Avenue. These buildings were occupied for the first time during the spring semester 1967.

The Malcolm R. Patterson Building.

Housing the offices and classrooms of the Department of English, it is named in honor of Governor Patterson, who was the state's chief executive in 1909 when the University was initially constituted.

The Library.

The University Library, named in honor of former President John Willard Brister, was built in 1927; it has since been considerably enlarged, the latest edition having been completed in 1963. The collection at present numbers over 200,000 volumes, including all U.S. Government publications since 1956. Subscriptions and files are maintained for general and specialized periodicals.

An undergraduate library is presently under construction. It is located south of the existing library and will be connected so as to form an integral part of a library complex. The new structure, featuring a 12 story stack tower, will be put into service in 1968.

Dormitories and Other Housing.

There are four campus residence halls for women: Mynders Hall, West Hall, Nellie Angel Smith Hall, and Rawls Hall. There are four campus residence halls for men: Hayden Hall, McCord Hall, Browning Hall, and Robison Hall.

In addition to these residence halls, Memphis State University operates the privately-owned Highland Towers and Central Towers. The Towers house men and women in air-conditioned suites. The Towers' cafeterias serve 20 meals per week, cost of which is included in total charges for each semester.

Vets Village contains apartments open to all married students, although veterans have preference. Applications for occupancy should be made to the University Housing Office.

Auxiliary Buildings.

The Old Gymnasium was in 1961 converted into studio and office space for WKNO-TV, the educational television station operated by the Memphis Community Television Foundation.

The Cafeteria, with a seating capacity of 500, adjoins *The Student Center*, which contains a soda fountain, two snack bars, and facilities for group meetings, games, and dancing. A faculty dining room is located in a wing of the former campus school building. All of these facilities are air-conditioned.

The Panhellenic Building, erected in 1959 and enlarged in 1963 by the national sororities with chapters on the campus, is an air-conditioned facility which affords suites for ten sororities and a hostess, guest room, kitchen, and ballroom.

The University Auditorium, located in the air-conditioned Administration Building, seats 1200 and has a stage fully equipped for dramatic and musical productions.

The Bookstore provides air-conditioned, self-service shopping facilities for text-books, and school supplies and equipment.

The University Center is located on the east side of the Mall and was opened in 1968. It houses the University Bookstore and, in addition, provides a variety of food-service, recreational, and conference facilities.

Chucalissa Indian Village and Museum.

Chucalissa, prehistoric Indian town and museum, situated in the southwest corner of Shelby County on Mitchell Road, is operated by the University as a research and training facility. Excavation of the site is being undertaken, with students performing the archaeological field work under staff supervision. Adjoining acreage serves as a biological field station. Chucalissa also provides indoor and outdoor archaeological exhibits, open to the public throughout the year.

Kennedy Property.

The University has acquired 129 acres of land, formerly the Kennedy Veterans' Hospital site at Park and Getwell. This land will be developed for University facilities and programs.

Meeman Forest Farm.

This 623-acre land gift to the University was made by the trustees of the Edward J. Meeman Foundation. The land will be used for biological studies. The late Mr. Meeman was for 31 years editor of the *Memphis Press-Scimitar*.

Speech and Hearing Center.

Located at 807 Jefferson in the Medical Center of Memphis, this facility became affiliated with the University in 1967. It serves children and adults with speech and hearing defects. The University administers and operates the Center in cooperation with the board of Memphis Speech and Hearing Center, Inc.

Extension Division.

Memphis State University has for a number of years conducted general education workshops. The increasing demand for these services has resulted in the organization of an Extension Division. The Extension Division was authorized by the State Board of Education in 1951 to afford an official avenue through which University services could be extended off-campus.

Extension Class Instruction.

Graduate courses are offered through the Extension Division of Memphis State University at centers where suitable arrangements are made in advance. Regularly employed graduate faculty members listed in this Bulletin teach graduate extension courses. The subject matter taught in extension classes is the same as that offered on campus. Regulations regarding the approval of extension courses toward requirements for the Master's degree are found on page 50 of this Bulletin.

Other Extension Services.

Where circumstances justify, the Extension Division attempts to provide various types of help to organized groups within the service area. This assistance may take the form of such activities as conferences, public addresses, consultative service, and other types of school and community aid. Regularly employed staff members of Memphis State University are available for this service.

To the end that an effective extension service may be conducted by Memphis State University, correspondence is invited with groups or individuals who are interested. Please address correspondence to:

EXTENSION DIVISION
College of Education Building, Room 400
Memphis State University
Memphis, Tennessee 38111

Admission To The Graduate School.

The Graduate School is open to persons holding the Bachelor's degree from colleges and universities recognized by standard, general or regional accrediting agencies, and whose undergraduate work has been of sufficient quality and scope to enable them to profitably pursue graduate study.* Scores are required on the Miller Analogies Test or the aptitude phase of the Graduate Record Examination. In the event the student intends to seek the Master of Business Administration degree he should take the Graduate Record Examination Advanced Business Test. This test may be taken in any institution approved to administer it.

Admission to The Graduate School merely gives the privilege of taking course work. It does not in any way imply that the student is admitted to candidacy for an advanced degree.

Application blanks for admission to The Graduate School may be secured from the office of the Dean of The Graduate School; all inquiries should be addressed to him. Students who wish to arrange for the Miller Analogies Test should call or write the Guidance and Testing Office, Administration Building for a date. A \$5.00 fee is charged for the test. It is payable in the Business Office.

Applicants for admission must submit an application and two official transcripts of their undergraduate credits before being considered for entrance into The Graduate School. An application fee of \$5.00 is required at the time the applications are submitted. Memphis State University students are not assessed this fee.

Applicants must present evidence of good health, moral character, and intellectual capacity necessary for pursuing graduate study.

Registration and Attendance.

After being notified of acceptance to Graduate School, the student must arrange a personal conference with the Dean. During this conference the Dean will assign tentative advisers and will advise as to programs available in The Graduate School.

The student at this early interview will be expected to declare his major and collateral area of study. Students who have previously declared major and collateral areas of study but desire to

*NOTE: Undergraduate students at Memphis State University who are enrolled for courses which complete their undergraduate degree may apply for admission as combination students to graduate studies and in special cases be allowed to register for graduate courses not to exceed a total of 15 semester hours of combined course work. In addition, students must have passed the English proficiency test and have an overall 3.0 average for the last year in which they were enrolled.

make a change should arrange a conference with the Dean in order that the records may be revised.

The current *Schedule of Classes* will contain complete information concerning registration procedures.

Adding, Dropping, or Changing Sections.

After a graduate student has completed his registration, changes cannot be made without approval of the Dean of The Graduate School. The adjustment will originate in the office of The Dean, and the change-of-course must have the approval of the student's major adviser and the Dean.

Withdrawing From Graduate School.

Failure to give official notice of complete withdrawal from Graduate School in writing will result in a grade of "F" in each course for which the student was registered.

A withdrawal is not permitted within one week of the beginning of the final examination period of a semester or a summer term. Any student who withdraws after the drop period ends will have all courses not previously dropped recorded as: WP—Withdrew Passing or WF—Withdrew Failing.

Address your notice of withdrawal to:

DEAN, THE GRADUATE SCHOOL
Memphis State University
Memphis, Tennessee 38111

If a student withdraws with an unsatisfactory grade-point average he must secure approval from the Graduate Dean for re-admission. The adviser should examine the graduate transcript before giving approval.

Patterson Hall (opposite page) is home of the Department of English, one of fourteen departments in The College of Arts and Sciences offering graduate study.

Expenses and Aid



Expenses at University.

The matter of expense while attending the University is of importance to every student. It is difficult, however, to give specific information about yearly expenditures; expenses vary according to the nature of the curriculum, the place of residence (whether in Tennessee or in another state or country), and the student's own habits and needs. In any student body there are so many different tastes, as well as such a wide range of financial resources, that each student must determine his budget in keeping with his own needs and financial condition. It is possible to live simply, and to participate moderately in the life of the student community, on a modest budget. The best help the University authorities can offer the student in planning his budget is to inform him of certain definite expense items and to acquaint him with others for which he will in all probability have to provide.

The information in this section concerning tuition, fees, deposits, financial aid, etc. is applicable only to students enrolled in The Graduate School. Similar information for students in the under-graduate colleges and The School of Law is available in the bulletins of those colleges.

The listing of any fee or incidental charge in this catalog does not constitute a contract between the University and the student. Because of rapidly changing conditions it may become necessary to alter a fee structure before the next edition of the catalog is published. As a condition of registration each student will pay the fees in effect at the time he registers.

Application Fee.

Each student submitting an application for admission to the University must pay, at the time he submits his application, a non-refundable fee of \$5.00 except Memphis State University students.

Maintenance Fee.

All students, whether resident or non-resident, pay a maintenance fee of \$13.50 per semester hour, not to exceed a maximum of \$132.50. Students paying the maximum fee are entitled to certain health services; admission to home athletic events, concerts, plays, social and other student-sponsored activities; and a subscription to *The Tiger Rag*, the student newspaper.

Tuition.

No charge is made for tuition to bona fide residents of the State of Tennessee; non-residents are charged \$187.50 per semester (for full-time students) or \$17.00 per semester hour (for part-time students).

The following policy is applied by the State Board of Education in classifying students as residents or non-residents for purpose of assessing tuition charges:

As a general rule the residence of a student is presumed to be that of his parents or guardians on the date of his enrollment at Memphis State University. "Residence" is interpreted to mean the state in which the parents or guardians are domiciled. "Guardian" is interpreted to mean a bona fide legal guardian appointed by the courts for purposes other than the establishment of residence for the purpose of avoiding payment of non-resident tuition. The residence of a married student (minor or adult) or the residence of an unmarried adult student shall be presumed to remain that of his parents or guardians unless he has independently established a residence of his own. The fact that such a student owns and dwells in his own home in Tennessee shall be sufficient evidence to classify him as a Tennessee resident.

The office of the Dean of Admissions and Records shall make the original decision concerning residence classification. The student may appeal this decision to the Committee on Residency; he may also petition this committee at a later date, if circumstances change, to reconsider his classification. Further information about residence classification may be obtained from the Dean of Admissions and Records.

The Summer Session.

The Summer Session consists of two separate terms of approximately six weeks each. Charges are assessed, however, not by the term but either (1) for the entire two-term Session or (2) on a semester hour basis. The charge for the entire Session (during which the student may take a maximum of twelve semester hours) is \$95.00 to residents of Tennessee, \$320.00 to non-residents. The semester-hour charge is \$13.50 per semester hour to residents, \$30.50 per semester hour to non-residents.

The student must indicate his choice of payment plan (either for the full two-term Session or per semester hour) at the time of his initial registration; he may not shift from one plan to the other thereafter. No part of his payment is returnable unless he withdraws from the University within the period during which refunds are allowed. If, for example, he pays for the entire Session and then enrolls for fewer than the maximum number of hours allowed him, or if he decides to attend only one term, no part of his \$90.00 (or \$215.00) payment will be refunded. The student who wishes to attend for only one term or to take fewer than seven semester hours in two terms should, for his own benefit, pay at the semester-hour rate.

Fee Refunds.

If a student withdraws from the University within seven days after the beginning of classes for the fall and spring terms, a refund will be made of 80% of his maintenance fee and tuition or music fee (if any). Each week thereafter, the amount will be reduced 20%. *All other fees are non-refundable.*

For The Summer Session a refund of 80% of the maintenance fee and tuition or music fee (if any) is made if the student withdraws from the University within three school days after the beginning of classes. Each three school days thereafter, the amount will be reduced 20%. *All other fees are non-refundable.*

Residence Halls.

Charges for rooms in University residence halls* are indicated below. For information concerning application for rooms, contact the Office of University Housing.

	PER SEMESTER	PER SUMMER TERM
Rawls Hall (air conditioned)	\$154.00	\$ 46.50
Robison Hall (air conditioned)	\$137.00	\$ 38.50
Central and Highland Towers (air conditioned and full meals)	\$506.50	\$173.00
Hayden Hall (graduate men; single room) ..	\$154.00	\$ 46.50
All other residence halls	\$131.50	\$ 40.25

Residence Hall Contract, Deposit and Rental Fee.

The following policy shall be in effect beginning with the Fall semester 1968 covering residence hall contracts, deposits and rental fees:

1. All residence hall contracts are for the academic year or any portion thereof and cover residency each succeeding year until cancellation or withdrawal from the University.

2. Each application for residence hall accommodations must be accompanied by a deposit of \$25. This deposit against damages shall remain on file with the University throughout the student's occupancy of housing facilities, and is refundable only under the following conditions:

- A. When written request is received in the Housing Office prior to July 15 for the Fall semester, January 5 for the Spring semester, and May 1 for the Spring semester, and May 1 for the Summer term.

*All rates include telephone (except in Robison Hall) and post-office box, but *not* long-distance telephone tolls.

- B. When a student is denied admittance or re-entry to the University.

Approved refunds will be reduced by the amount of any unpaid damages at the time residence hall space is vacated.

3. Initial applications for residence hall accommodations in halls other than Highland or Central Towers must be accompanied by an advance rental payment of \$25 which will be applied to total rent at registration. (This is in addition to the \$25 deposit mentioned above.)

4. Students who wish to retain their rooms for subsequent semesters must make this advance payment by July 15 for the Fall semester and by January 5 for the Spring semester.

5. No prepayment or rent is required for the Summer term.

6. Refunds of the \$25 advance rental payment will be made only when the following conditions exist:

A. The student is denied admittance or re-entry to the University.

B. The student is prevented from entering the University because of medical reasons, such reasons confirmed in writing by a licensed physician.

C. The student is inducted into the armed service involuntarily. This does *not* include voluntary enlistment or the call to active duty by a student who voluntarily enters reserve duty.

D. Residence hall space is not available.

E. Reservations are cancelled prior to July 15 for the Fall semester and January 5 for the Spring semester.

7. Refunds of residence hall rent after classes begin will be prorated on a weekly calendar basis when the following conditions exist:

A. The student is forced to withdraw from the residence hall because of medical reasons, such reasons being supported by a statement from a licensed physician.

B. Armed forces inductions as in item 6C above.

Meals.

The University Cafeterias, Student Centers, and Vending Areas, open to all students, provide wholesome food at reasonable prices. The cost of meals per student is estimated at \$2.50 per day.

Late Registration.

Students who do not complete registration (including the payment of fees) during the official registration period will be charged \$5.00 for the first day after the official registration period and \$1.00 per day thereafter.

Adding and Dropping Courses.

A charge of \$3.00 per course will be made for each course which is added or dropped after the student has completed registration.

Late Examinations.

A student who is permitted to take a final examination at a date later than the one on which the examination was originally scheduled will be charged \$1.00 per examination.

Transcripts.

One transcript of the student's academic record at Memphis State University is furnished free; a charge of \$1.00 is made for each additional copy requested. Transcripts are issued only at the request of the student or his authorized agent. No transcript will be provided for a student who has any financial indebtedness to the University.

Automobile Registration.

Each person who expects to operate and park an automobile on the campus must register it in the traffic office (Room 130, Administration Building) and pay \$3.00 for an official permit, valid from September through August.

Identification Cards.

The University issues to each student an identification card, including his photograph, personal description, and certificate that he is enrolled as a student in the University. The card is required for registration, the borrowing of library books, the cashing of personal checks, and other purposes. *The card remains the property of Memphis State University;* a charge of \$10.00 will be required for its replacement.

Bad Checks.

It is expected that a check given in payment of any fee will clear the bank on which it is drawn. *If a check is returned, the fee is assumed to be unpaid and charges for late payment will be as-*

sessed. A \$2.00 service charge will be assessed for each bad check, whether given in payment of fees or cashed by the University for the personal convenience of the student. Check-cashing privileges will be revoked for any student who has had checks returned by his bank more than once.

Laboratory Deposits.

Certain courses in chemistry and physics require breakage deposits, any unused portion of which is refunded.

Courses in Applied Music.

The fee for all private lessons in brasses, canon and fugue, composition, organ, percussion, piano, strings, woodwinds, and voice is \$50.00 (those currently registered for music theory) per half-hour lesson per semester. Those students who are majoring in music will pay only one \$50.00 fee per semester.

Additional Charges.

The University reserves the right to increase the charges listed herein or to add new ones whenever such increases or additions are found to be necessary.

Thesis.

The student will be required to present a receipt from the Business Office to the Graduate Office showing that he has paid a fee of \$2.50 for each copy of his thesis which is to be bound.

Dissertation.

A student completing the doctorate will be required to pay the \$2.50 fee for binding each copy of his dissertation and in addition a fee of \$35.00 to defray the cost of microfilming the dissertation and publishing the abstract.

Diploma Fee.

Each candidate for a degree from Memphis State University pays a \$15.00 fee to cover cost of the diploma, rental of cap and gown, and incidentals connected with the commencement exercises. This fee must be paid thirty days before graduation.

Graduate Assistantships.

MASTER'S LEVEL ASSISTANTSHIPS. Graduate assistantships for Master's degree students are available in most of the

academic areas at Memphis State University. Departments seeking assistants are: Accounting, Biology, Business Education, Chemistry, Economics, Education (several special areas), Engineering, English, Geography, Geology, Health, Physical Education and Recreation, History, Management, Marketing, Mathematics, Modern Languages, Music, Physics, Political Science, Psychology, Sociology, Speech and Drama. Full time assistants may anticipate from \$200 to \$250 per month.

DOCTORAL ASSISTANTSHIPS AND FELLOWSHIPS. A few assistantships are available for doctoral students in Psychology and Education. The amount available through fellowships may vary according to the number of dependents.

RESIDENCE HALL ASSISTANTS. Resident advisers have full responsibility for a residence hall. They are provided with living quarters and are paid approximately \$200 per month. Floor counselors are responsible for a floor and are provided with a room and a stipend each semester.

For application forms and additional information, write to:

DEAN OF THE GRADUATE SCHOOL
Memphis State University
Memphis, Tennessee 38111

The College of Business Administration (building opposite page) offers graduate work leading to the Master of Business Administration degree.



Graduate Programs

Graduate Programs.

A wide variety of graduate programs of study are offered in The Graduate School of Memphis State University. Candidates for a degree must design a plan which has the approval of their major adviser. This plan will include both a major and a collateral area of study, and the degree sought.

Memphis State University offers Master's degrees, Education Specialist degrees, and Doctoral degrees. The Masters' programs are: Master of Arts (M.A.), Master of Arts in Teaching (M.A.T.), Master of Business Administration (M.B.A.), Master of Education (M.Ed.), Master of Music (M.M.) Master of Science (M.S.), and the Master of Science in Teaching (M.S.T.). In addition, advanced degrees are awarded. In the area of Education, the degrees of Education Specialist (ED.S.) and Doctor of Education (Ed.D) are offered. The Doctor of Philosophy (Ph.D.) is awarded in some departments.

Every graduate student is expected to comply with the general requirements for the Master's degree, Education Specialist, and the Doctorate degree, as outlined elsewhere in the *Graduate School Bulletin*. In addition to the general requirements, the student will be expected to conform to the requirements of one of the departments of the University. The choice of the department in which the student is to major may, in large part, determine the degree he will seek, since the graduate degree should reflect the type of program the student has followed.

Master's Degree.

The program for the MASTER OF ARTS degree is generally open to those who have completed the Bachelor of Arts degree. Others may enroll for the M.A. degree if undergraduate prerequisites are met. Departmental requirements with reference to thesis, language, and course requirements are outlined on pages 59 to 165 of the Bulletin. Students majoring in the following areas are generally expected to seek the Master of Arts degree: English, Geography, History, Modern Languages, Music (Applied), Music History, and Music Theory, Political Science, Psychology, Sociology, and Speech and Drama. Economics majors may choose to apply for this degree also.

The programs for the MASTER OF ARTS IN TEACHING degree are designed for a selected group of students who offer outstanding undergraduate academic records. The degree is awarded in the Department of Elementary and Secondary Education. Either of two programs may be elected by the student in consultation with his major professor:

A. FOR STUDENTS SEEKING CERTIFICATION: A minimum of 24 hours of Education courses and a minimum of 12 hours in non-Education courses, as approved by the student's major professor. Generally, the student will take his non-Education courses in the field of his undergraduate major.

Candidates for the Master of Arts in Teaching degree who have not completed the laboratory experiences at the undergraduate level will be required to do so at the graduate level, in which case a minimum of 36 hours is required for the degree.

B. FOR STUDENTS ALREADY CERTIFIED: A minimum of 18 hours of Education courses and a minimum of 15 hours of non-Education courses, as approved by the student's major professor.

In the event the student wishes to change his teaching field from his undergraduate major he will be required to meet the departmental prerequisites and teaching certification requirements. The student may have a distributive endorsement if he is seeking a teaching endorsement in more than one field. Students may seek certification endorsement in any graduate area for which there is an undergraduate endorsement.

The Master of Arts in Teaching degree may be earned without the presentation of a thesis. No provision is made for thesis credit within the total hours required for the degree.

The program for the MASTER OF BUSINESS ADMINISTRATION degree is generally open to those who have completed the Bachelor of Business Administration degree or its equivalent. Others may enroll for the M.B.A. degree if undergraduate prerequisites are met. The departmental requirements are found on pages 59 to 165 of the Bulletin. The Business Administration degree is awarded to those students who major in the following areas: Accountancy, Economics, Finance, Management, and Marketing.

The program for the MASTER OF EDUCATION degree is generally open to those who have completed the requirements for teacher certification. Departmental requirements with reference to thesis, research and course requirements are found on pages 59 to 165 of the Bulletin. Those who are majoring in the following areas may seek the M.Ed. degree: Elementary Education; Secondary Education; Special Education, Guidance and Counseling; Reading; Health, Physical Education, and Recreation; Music Education; Educational Administration and Supervision; and Business Education and Office Management; and Distributive Education.

The program for the MASTER OF MUSIC degree is generally open to students specializing in one of the following areas:

Applied Music, Music Theory, and Music History and Literature. This degree is designed for those who have completed the Bachelor of Music degree in one of the above specified areas.

The program for the MASTER OF SCIENCE degree is generally open to students with a science background. Departmental requirements with reference to thesis, language, and course requirements are outlined on pages 59 to 165 in the Bulletin. Those who are majoring in the following areas may seek the Master of Science degree: Biology, Chemistry, Engineering, Geography, Geology, Mathematics, Physics, and Psychology.

The program for the MASTER OF SCIENCE IN TEACHING* degree is generally open to those who have completed a teacher preparation program. The purpose of this degree is to improve teaching in the secondary schools in science areas in which the teachers recognize a deficiency. Students who are accepted should have completed a teacher preparation program. Those who have not will be required to qualify for certification as a teacher before the degree will be awarded. Major and collateral areas will be selected from the broad areas of science. Courses may be distributed in the departments of Biology, Chemistry, Earth Sciences, Geology, Mathematics, and Physics. Major or collateral areas of emphasis for this degree will be only Biology, Chemistry, Mathematics, or Physics.

A minimum of 33 semester hours is required, with a total of 21 semester hours or more in the major areas, and 12 or more hours in the collateral areas. For the MAJOR areas, students may select, with the approval of the adviser, a minimum of 9 semester hours in one area of science, 6 hours in a second science, and 3 hours in a third science. Any student who has not completed 6 semester hours of Mathematics, is required to complete 3 hours of college Mathematics. If the student has completed the Mathematics requirement, he may select one course of 3 or 4 semester hours from any area of science as an elective. For the COLLATERAL areas, students may upon approval of the adviser, take a collateral area outside the field of science to satisfy their area of endorsement. Additional courses may be required which will enable them to pursue a teaching program. Only 6 semester hours will be permitted in the collateral area in The College of Education. A minimum of 6 additional semester hours of elective credit must be selected from the science area.

Credit for a thesis is not allowed. Students may consult the department Chairmen concerning the specific details of the program.

*This degree is not to be confused with the regular Master of Science degree.

General Requirements for the Master's Degree.

Every graduate student and every prospective graduate student is expected to make himself thoroughly familiar with the regulations of The Graduate School and the requirements for degrees. Failure to follow the regulations and requirements almost inevitably results in complications for which The Graduate School cannot assume responsibility.

Semester Hour Requirements.

The Master's degree program shall include 30-33 semester hours of course work as follows, 18-24 semester hours in a major area, and 8-12 semester hours in a collateral area.

A thesis of 3 to 6 semester hours may be presented as partial completion of degree requirements. If a thesis is presented, the student may be graduated with a total of 30 semester hours of which a minimum of 18 semester hours, exclusive of the thesis, shall be in the major field.

If no thesis is submitted, the overall degree requirements shall be 33 semester hours, with a minimum of 21 semester hours in the major area.

All requirements for the degree must be completed within six years from date of the candidate's original registration for graduate courses.

At least 18 semester hours of the courses in a student's program must be of the type designated as primarily for graduate students (7000 level courses). At least 12 semester hours of this must be done in the major. The department in which the collateral area is taken will determine whether or not any 7000 level courses are required.

Work done by graduate students registered for 6000 courses must be of a higher quality than that required of undergraduates. Also, the graduate student is required to do additional work. This may consist of research or of such other work as the instructor may demand.

Courses of 6000 level are offered as undergraduate courses with 4000 level numbers. A student may not receive credit for a 6000 level course if he has credit at the 4000 level.

Courses are numbered according to the following system:

- 4000-4999—Courses primarily for seniors and for which graduate credit is not offered
- 5000-5999—Courses offered in The Graduate School but open to seniors within 36 hours of graduation
- 6000-6999—Senior courses open to graduate students
- 7000-7999—Courses open only to graduate students
- 8000-8999—Courses open primarily to post-Master's students

Amount of Work Permitted.

Sixteen semester hours shall be the maximum load for students devoting full time to graduate study. Only full time students may register for twelve semester hours of course work in any one semester, including courses on campus, extension courses, and courses to be transferred from other institutions.

Graduate students who are employed on a full time basis may not register for more than two courses.

A student may register for 18 semester hours during his final academic semester for the purpose of graduating, if he has had a 3.5 average on previous graduate studies completed.

Certain residence courses, designated as "problems courses," are described in this bulletin. Seven semester hours of credit through problems or research courses may be applied to degree requirements; however, not more than four semester hours may be applied toward the major or more than four semester hours toward the collateral area. A file of the work submitted by graduate students for credit in problems courses will be maintained in the Graduate Office, and graduate students will not be allowed to register for more than one problems course in any one semester or full summer session.

Admission To Candidacy For The Master's Degree.

To become a candidate for a degree, the student must file an application on blanks available at the office of the Dean. The student must indicate on the application the degree program he is choosing. The application must contain plans for a complete program of graduate study and be approved by a faculty adviser in both the major and collateral areas.

Before the "Application for Admission to Candidacy for the Master's Degree" can be approved and the applicant can be officially admitted to candidacy for a Master's degree, the student must have satisfied the following requirements:

1. He should file Application for Admission To Degree Candidacy after 12 semester hours of graduate work in residence.
2. He must have completed prerequisite undergraduate requirements of not less than 18 semester hours in his graduate major area and not less than 6 semester hours in his graduate collateral area, except in special cases approved by the Dean of The Graduate School and the Chairman of the department concerned.
3. He must have at least a "B" average on all graduate work immediately preceding the date of the application for degree candidacy.

4. The general field of his thesis must have been approved after admission to candidacy has been established, if his program includes the requirement of a thesis.
5. His graduate work up to this point must be acceptable in quality and quantity to his major and collateral area departments as attested by their approval of his program.
6. His entire program must conform to the general regulations of The Graduate School and the requirements for his particular major and collateral area.

Every student who files an "Application for Admission to Candidacy for the Master's Degree" will receive from the Graduate Office an approved copy of the application or a letter explaining why approval has been withheld.

Minimum Residence Requirements.

Completion of two semesters of residence study is required. It may be computed on the basis of a minimum of twelve semester hours of credit as the equivalent of one semester of residence.

Audit Courses.

Students who are registered for one or more classes at Memphis State University may also register to audit a course with the approval of their adviser and the chairman of the department in which the course will be offered. Auditors are not to prepare lessons or papers, or take examinations. They are not to take part in class discussions or laboratory or field work.

Persons who are not enrolled for credit courses may register for audit courses with the approval of the Dean of Admissions and Records and the department chairman.

Students enrolled for credit courses may take no more than one audit course per semester. Persons who are not enrolled for credit courses may register for a maximum of three courses with the approval of the department chairman.

Fees for audits will be assessed on the same basis as fees for credit courses.

Credit for Work Completed Elsewhere and by Extension.

There is no automatic transfer of credit toward a graduate degree, but, in general, residence work completed at another accredited graduate school may be accepted for not more than six semester hours of course credit toward a Master's degree. No transfer of credit will be approved if the grade point average for graduate work attempted is less than three on a four point system. However,

such work will not reduce the minimum residence requirement for the Master's degree.

Six semester hours of course work completed through the Memphis State University Extension Division may be applied toward degree requirements; however, not more than three semester hours may be applied toward major requirements or more than three semester hours toward collateral area requirements.

Extension work taken with another institution is not transferable.

Six semester hours of transfer work may be applied toward degree requirements; however, not more than four semester hours may be applied toward major requirements or more than four semester hours toward collateral area requirements.

Not more than nine semester hours of any combination of extension work and work completed elsewhere may be credited toward the course requirements for the Master's degree.

Graduate credit is never granted for courses taken by correspondence.

Grades.

The grades which may be awarded are as follows: A—B—C (the lowest grade for which graduate credit is allowed)—D—F, I (Incomplete), P (In progress), and W (withdrawn).

The grades for research, thesis, and dissertation courses shall be "U" or "S". Letter grades are given for special problems courses.

An average grade of "B" must be maintained in ALL graduate work, and credit earned with a "D" grade may not be counted toward meeting the major or collateral requirements for the Master's degree.

Work with a grade of "F" will be included in the grade average computation.

Not more than 7 semester hours of credit with a grade of "C" may be applied toward meeting the degree requirements, and not more than 4 semester hours of "C" may be accepted in the major, and not more than 4 semester hours of "C" in the collateral area.

A grade of "I" on regular Course Work will become an "F" unless removed within the first four weeks of the next semester that the student is in residence. The deficiency, however, must be corrected within one calendar year from the date the "I" was recorded.

Instructors of problems courses shall be allowed to give a grade for "work in progress" (P) to extend the time for the completion of such research. In the event this time extension is for

longer than one calendar year, the responsible instructor shall present a written recommendation to the Office of the Dean of Admissions and to the Dean of The Graduate School for an official dropping of the course or for the assignment of a specific grade.

A student who fails to earn thesis credit at the end of one academic semester following the registration for the total thesis credits allowable will be required to renew his thesis status. In order that he remain in active status, the Master's degree candidate will be required to register for 3 semester hours of thesis credit. This renewal of active status must be continued each academic semester until the thesis is completed. Registration in either term of summer school will fulfill the requirement for the summer. Credit will be posted upon completion and acceptance of the thesis, but no more than 9 hours will be allowed for a Master's thesis, even though the student may have been required to register for additional hours in order to remain in active status. The registration may be waived for any semester, if the student's adviser is not available or for other reasons approved by the department chairman.

Comprehensive Examination for the Master's Degree.

Before being recommended for graduation, every candidate for the Master's degree is required to pass a final comprehensive examination in his major and in his collateral area; it may be oral or written or both, at the discretion of the departments concerned.

A student will not be permitted to take the comprehensive examination before his application for Degree Candidacy has been approved.

It is the student's responsibility to confer with his major and collateral area departments regarding the time and place of the examination. No reminders will be sent him by the Graduate Office.

Statement of Intention to Graduate.

Candidates for the Master's degree must file a statement of intention to graduate with the Dean of The Graduate School at the beginning of the semester, or session, in which the academic requirements for the degree are to be completed. The degree desired shall be shown on the application form.

A student is not allowed to graduate in the last semester unless a "B" average is maintained for all semesters. Grades made the final semester are not allowed to average deficiencies. He will be permitted to graduate the subsequent semester.

To facilitate communication, graduate students are expected

to notify the Graduate Office of their changes of address. They should remember that all details connected with their work center in the Graduate Office.

Doctoral and Specialist Degrees.

Three Post-Master's degrees are offered by the Graduate School. These are the Education Specialist degree (Ed.S.), the Doctor of Education degree (Ed.D), and the Doctor of Philosophy degree (Ph.D.). The Education Specialist degree is a one-year program beyond the Master's degree with the additional requirement of a thesis. The Ed.D. and Ph.D. programs require a minimum of two years beyond the Master's degree.

Doctor of Education.

The doctorate in Education is available in three areas: Administration and Supervision, Curriculum and Instruction (general), and Personnel Services. Students who have been admitted to candidacy will be expected to complete no less than 12 to 18 semester hours of course work and write a dissertation. Students should apply for candidacy as soon as possible, in order that a departmental advisory committee can be established to advise them concerning the program to follow.

Each student's program will be designed to give him a background of knowledge which is deemed to be desirable for his declared objectives. In general, all candidates for the doctorate will be expected to have had, or to complete, a core of courses in any three of the following broad fields: the behavioral sciences, the social sciences, educational foundations or philosophy, and measurement and evaluation or statistics.

To be eligible to receive the Doctor of Education degree, the student must have had a minimum of two years of acceptable experience in teaching or other appropriate educationally-related work. An approved internship may apply as a year of experience, but it may not satisfy more than half of the residence requirement. If the internship is to be used to meet a part of the residence requirement, it must have the recommendation of the department in which the student is pursuing a major.

Candidates for the Doctor of Education degree will take courses in two areas other than the major. Usually at least one area of study should be outside the field of Education. The total hours outside the major area should not be fewer than 18, with no less than 6 hours in either of the two areas of study. The collateral areas may be chosen from any University department that has been approved to offer a major at the Master's level, provided the areas are appropriate to the student's objectives and are approved by the departmental graduate advisory committee.

Each student admitted to candidacy must register for the doctoral seminar, a course open only to doctoral candidates. Each student will be expected to develop a dissertation outline and present it as a part of the course requirements. Participants in the seminar for doctoral candidates will be graduate faculty members of The College of Education and departmental advisory committee members.

Doctor of Philosophy.

The Doctor of Philosophy degree is offered by the Department of Psychology. The general requirements for the Ph.D. degree in psychology are outlined in the following statements dealing with doctoral and specialist degrees. More detailed information about prerequisites, course work, research requirements, and degree programs can be obtained from the chairman of the Department of Psychology.

Education Specialist.

Students who wish to become candidates for the specialist degree will observe all of the general Post-Master's requirements which are applicable. For more specific information, students should read the statements of the Curriculum and Instruction Department and the Educational Administration and Supervision Department. The student should consult his departmental advisory committee concerning the qualifying examinations, admission to candidacy, and thesis requirements.

Admission to Post-Master's Courses.

Students follow regular admission procedures to enroll for Post-Master's credit. Those who hold Master's degrees from accredited colleges or universities should attempt to present Graduate Record Examination scores prior to the initial registration, but this is not required for admission. Any department may deny the student registration privilege if he lacks academic preparation, if he has inadequate grades, if he fails to present required test scores, or for other valid reasons. A student's initial enrollment in no way should be taken to mean that he has been accepted for degree candidacy. It is important that the student declare his intentions as soon as possible after his initial enrollment in order that candidacy status may be established. When the student is admitted to candidacy, his departmental graduate advisory committee will plan a complete program. Not until this time will the student's status be clearly defined.

Faculty members of the University will not be permitted to enroll in a doctoral degree program. They may enroll in courses

for the purpose of transferring credits to another institution or they may enroll for personal improvement.

Admission to Candidacy.

As soon as possible after the student has enrolled in Post-Master's course work he should confer with his department advisor as to the department's policy concerning the completion of his application for degree candidacy. No student will be admitted to degree candidacy until the proper forms are approved by the departmental chairman and the Graduate Dean and filed in the Office of the Dean of The Graduate School. Forms are available in the Graduate Office (Room 328, Administration Building). Failure to discuss long-range degree plans with the departmental advisor and the Graduate Dean may result in misunderstandings and misconceptions on the part of the student.

Each person applying for candidacy will be required to take a qualifying examination administered by the department in which the student wishes to major. The examination may cover specialized knowledge and general knowledge; writing skill will also be considered. To be eligible to take the departmental qualifying examination, the student must have presented scores on the Graduate Record Examinations (aptitude and an advanced test) to the Graduate Dean. The test scores, transcripts and other pertinent data will be examined by a graduate departmental committee approved by the Graduate Dean. All students who are allowed to enroll for Post Master's courses are not necessarily eligible for the privilege of taking the departmental qualifying examination. Low scores on the Graduate Record Examination and/or an unsatisfactory grade average may prevent a student from taking the qualifying examination.

It is not advisable for a student to pursue a doctoral program in an institution from which he has obtained all of his prior degrees. A student in this category must have an exceptionally strong recommendation in writing from the department in which he wishes to major and then be approved by the Executive Committee of The Graduate Council before he can be accepted for candidacy.

Minimum Residence Requirements.

One academic year beyond the master's degree must be spent in full-time residence for the doctorate. Candidates for the Ed.S. degree will spend one full semester in residence, or two summers for both terms.

Research Requirements.

Doctoral degree candidates will be required to become proficient in the use of at least two research skills. A candidate for the Ed.D. degree may meet the requirement through courses in statistics and by demonstrating research competency, to the satisfaction of his departmental graduate advisory committee. A candidate for the Ph.D. degree in Psychology may meet this requirement by becoming proficient in the use of one foreign language approved by his departmental graduate advisory committee and by achieving research capabilities in an area other than his own specialization, the area to be approved by his departmental graduate advisory committee.

Ed.S. degree candidates will present a six-hour thesis based on research related to the graduate major. Ed.D. and Ph.D. degree candidates will present dissertations for a maximum of 12 hours of credit.

A student who fails to earn thesis or dissertation credit at the end of one academic semester following the registration for the total credits allowable will be required to renew his thesis or dissertation status. In order that he remain in active status, the candidate will be required to register for 3 semester hours of thesis or dissertation credit. This renewal of active status must be continued each academic semester until the thesis or dissertation is completed. (The summer term will be considered an academic semester for this purpose.) Credit will be posted upon the completion and acceptance of the thesis or dissertation, but no more than 6 hours will be allowed for an Ed.S. thesis and no more than 12 hours for a doctoral dissertation, even though the student may have been required to register additional hours in order to remain in active status. This requirement may be waived for any semester the adviser is not on the campus or for other research approved by the department chairman.

The candidate will be required to present to The Graduate School three copies of his thesis or dissertation to be bound. The dissertation, which will be microfilmed, must be accompanied by an abstract of not more than 600 words. The abstract will be published. Fees to cover the cost of microfilming and publishing are specified elsewhere and are to be paid by the student.

Time Limitation.

Credit earned more than ten years prior to the doctoral student's graduation cannot be applied toward meeting prerequisites or collateral requirements, if approved by the student's departmental advisory committee.

None of the last thirty-three semester hours of credit that is presented for fulfillment of the requirements for the Ed.S.

shall have been earned more than six years prior to the student's date of graduation.

Course Load Limitations.

Full-time Graduate students may enroll for a maximum of 15 semester hours. Those who register for 10 or more hours and devote a regular five-day week to study may be considered as full-time students. Graduate assistants who are responsible for the equivalent of two classes may register for no more than 9 semester hours; exceptions may be approved by the Graduate Dean upon the recommendation of the department chairman. Students who are employed full-time may register for no more than 6 semester hours.

Acceptance of Credit Toward Degree Requirements.

Credit earned in another institution must be presented for consideration at the time the student is accepted for candidacy. Upon the approval of the student's department advisory committee, the credit will be transferred to apply toward the Ed.S., Ed.D., or Ph.D., provided that the credit meets general University requirements. Not more than one year of transfer work can be applied to requirements for the Ed.D. or Ph.D. degrees. Only six hours of transfer credit will be permitted for the Ed.S. degree. No credit will be allowed toward specialist or doctoral degrees for correspondence courses, extension courses, or special short courses.

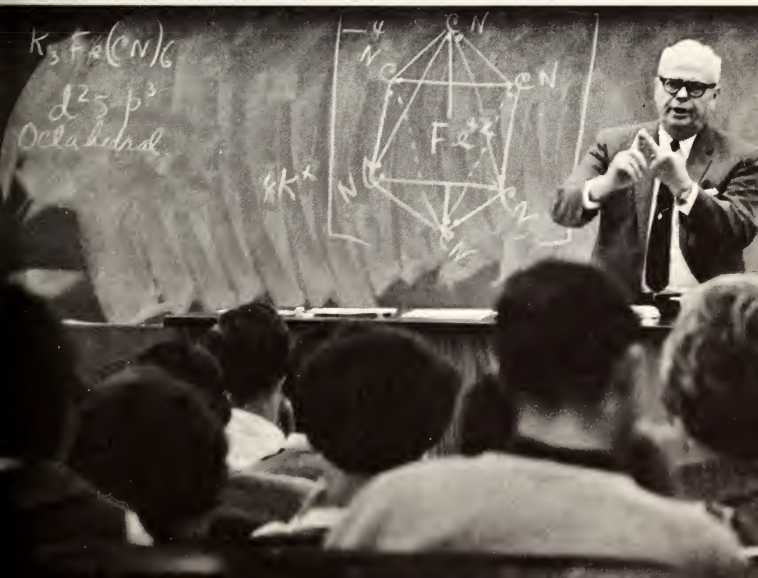
Comprehensive and Final Examinations.

A comprehensive examination may be required by a department prior to approval of a dissertation topic. After the completion of the dissertation and all the prescribed work for the degree, the doctoral candidate will be given a final examination by a committee composed of departmental and University representatives. An announcement of the scheduled examination must be sent to the Dean of The Graduate School at least one month prior to the scheduled date. If the student's performance on this examination is satisfactory, he will have completed all requirements for the degree.

Lecture sessions in Chemistry (opposite page) are supplemented by laboratory study. Graduate work is offered in chemistry, biology and physics.

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	5	6	7	8	9
	B	C	N	O	F
	10.8	12.0	14.0	16.0	19.0
	13	14	15	16	17
	Al	Si	P	S	Cl
	27.0	28.0	31.0	32.1	35.5
30	31	32	33	34	35
Zn	Ga	Ge	As	Se	Br
65.4	69.7	72.6	74.9	79.0	79.9
48	49	50	51	52	53
Cd	In	Sn	Sb	Te	I
112.4	114.8	118.7	121.8	127.6	126.9
80	81	82	83	84	85
Hg	Tl	Pb	Bi	Po	At
200.6	204.4	207.2	209.0	(210)	(210)
					(222)
65	66	67	68	69	70
Tb	Dy	Ho	Er	Tm	Yb
158.9	162.5	164.9	167.3	168.9	173.0
					71
					Lu
					175.0
97	98	99	100	101	102
Bk	Cf	Es	Fm	Md	No
(249)	(251)	(254)	(253)	(256)	(254)
					103
					Lw
					(257)

Description of Courses



The College of Arts and Sciences

Biology	59
Chemistry	65
English	70
Geography	72
History	75
Mathematics	77
Modern Languages	82
Music	86
Philosophy	90
Physics	92
Political Science	95
Psychology	98
Sociology and Anthropology	104
Speech and Drama	107

BIOLOGY

PROFESSOR CARL DEE BROWN, *Chairman*
Room 103, Ellington Hall

In the Department of Biology, graduate students will select either Botany, Invertebrate Zoology, Microbiology, or Vertebrate Zoology as a major area of study. The student will consult with his major advisor as to the program of study including undergraduate deficiencies which must be satisfied. Students should familiarize themselves with general requirements for the Master's degree.

- A. Biology 7000, 7200, 7600, and 7996 are required of all those who major in biology. Attendance in seminar is mandatory during each semester after which 12 hours have been accumulated with credit being earned in Biology 7200 in the penultimate semester of residence and credit for Biology 7600 during the last semester.
- B. Based on the 4 point system, a student must maintain a grade point average of 3.0 with no more than 10% of overall program being C's.
- C. A reading knowledge of one foreign language is required.
- D. Written examination, required of all graduate students; covering subject matter designated by advisory committee, will be administered once each semester and once during the first and second summer term on a date published by the department chairman.
- E. Presentation of research—7600 and a thesis—7996 as approved by the student's major professor.
- F. Final oral examination.

Biology may be used as a collateral area provided the student has the necessary undergraduate prerequisites.

When a student is enrolled in the MASTER OF SCIENCE IN TEACHING program, bonified graduate credit will be given only in those courses which are open to all graduate students.

6030. Cellular Physiology. (4).

A study of the fundamental unit of all living things. The basic activities of cells are investigated—nutrition, adaption, growth and reproduction. PREREQUISITE: Biology 3070.

Two lecture, four laboratory hours per week.

6060. Limnology. (4).

Physical and chemical attributes of lakes, ponds and streams; organisms of fresh water; problems of production; laboratory work emphasizes Tennessee lakes, and practical training in limnological methods and identification of organisms. PREREQUISITE: Biology 1600, and one year of chemistry.

Two lecture, four laboratory hours per week.

6080. Radiation Biology. (3)

Effects of ionizing and excitational radiations upon life processes. PREREQUISITE: Chemistry 3312 or 3412; Physics 1112 or 2112 and Biology 3070.

Two lecture, two laboratory hours per week.

6100. Organic Development. (3).

The consideration of the theoretical and scientific evidences concerning the origin, development, and establishment of the major groups of

living and extinct animals and plants. PREREQUISITE: One year of biology. Recommended for biology majors and general students as well.

***6200. Marine Botany. (4).**

A survey, based upon local examples, of the principal groups of marine algae and maritime flowering plants, treating structure, reproduction, distribution, identification and ecology. PREREQUISITE: Ten hours of biology, including introductory botany, or consent of instructor.

6221. Plant Morphology. (4).

Comparative studies of general structure of lower plants, exclusive of bacteria and related forms, through the Bryophytes. PREREQUISITE: Biology 1200 or its equivalent.

Two lecture, four laboratory hours per week.

6222. Plant Morphology. (4).

A continuation of 6221 in which the vascular plants are considered. PREREQUISITE: Biology 1200 or its equivalent.

Two lecture, four laboratory hours per week.

6231. Plant Physiology. (4).

A study of the principles of physiology and their application to the lower plant groups, exclusive of the bacteria and related forms. PREREQUISITE: Permission of the instructor.

Two lecture, four laboratory hours per week.

6232. Plant Physiology. (4).

A study of the principles of physiology and their application to the living organism as a whole, with emphasis on higher plants. PREREQUISITE: Consent of instructor.

Two lecture, four laboratory hours per week.

6240. Plant Taxonomy. (4).

A study of the principles of plant taxonomy. Special attention will be given to the classification of selected vascular plant families. Lectures, laboratory and field trips. PREREQUISITE: Consent of instructor.

6260. Histological Technique. (3).

Method of preparing plant tissues for microscopic study, theories of staining, and preparation of permanent mounts of plant tissues. PREREQUISITE: Biology 1200 or consent of instructor.

One lecture, four laboratory hours per week.

6400. Advanced Microbiology. (4).

Advanced theory and principles of Microbiology with emphasis on morphology and bacterial metabolism. PREREQUISITES: Biology 3500 and one year of introductory biology, one year of inorganic chemistry, with organic chemistry desirable.

Two lecture, four laboratory hours per week.

6440. Pathogenic Bacteriology. (4).

Methods of bacteriological technique, pure culture studies, and classification of bacteria. PREREQUISITE: Biology 3500, one year of introductory biology, one year of inorganic chemistry, with organic chemistry desirable.

Two lecture, four laboratory hours per week.

6460. Sanitary Bacteriology. (4).

A study of micro-organisms in relation to water and sewage; disinfection and disinfectants. PREREQUISITE: Biology 3500 or its equivalent.

Two lecture, four laboratory hours per week.

6560. Microbiology of Foods. (4).

Microorganisms in natural and processed foods; origins, nature and effects on foods, enumeration, and the relation to health. PREREQUISITE: Biology 3500 or the equivalent.

Two lecture, four laboratory hours per week.

***6600. Marine Vertebrate Zoology and Ichthyology. (6).**

A general study of the marine Chordata, including lower groups and the mammals and birds, with most emphasis on the fish. PREREQUISITE: Twelve semester hours of biology.

6604. Ethology. (4).

A study of animal behavior with emphasis on recent developments in the field including history of ethology, learning, releasers, communication, orientation, instinct, biological clocks, and evolution of behavior. PREREQUISITE: Biology 1600 or equivalent.

Two lecture, four laboratory hours per week.

6620. Vertebrate Histology. (4).

Microscopic study of normal tissues and organs of the vertebrate body. PREREQUISITE: Consent of instructor.

Two lecture, four laboratory hours per week.

6630. General Endocrinology. (3).

Anatomy and physiology of the organs of internal secretion; role of hormones in metabolism and development. PREREQUISITE: Biology 3730.

Three lecture-demonstration hours per week.

6640. Field Zoology. (4).

Designed to acquaint the student with a field knowledge of the animals of this locality. Identification, life history, and habitat will be considered. Birds and insects to be omitted. PREREQUISITE: Eight hours of biology including five hours of zoology.

Two lecture, four laboratory hours per week.

6644. Ichthyology. (4).

A study of fishes, with special emphasis upon the kinds which occur in Tennessee; collection, preservation and identification; life histories, management, and economic importance of fishes. PREREQUISITE: Biology 1600.

Two lecture, four laboratory hours per week.

6660. Histological Technique. (3).

A study of the methods of preparing animal tissues for microscopic study; theories of staining and preparation of permanent mounts. Credit not permitted for both 6260 and 6660. PREREQUISITE: Biology 1600 or consent of the instructor.

One lecture, four laboratory hours per week.

6720. Comparative Neurology. (4).

A detailed study of the nervous system of selected animals with emphasis on the vertebrates. PREREQUISITE: Consent of the instructor.

Two lecture, four laboratory hours per week.

6740. Mammalogy. (4).

Classification, distribution, life histories, economic importance, techniques of field study, methods of collection and preservation of mammals. PREREQUISITE: Biology 3620.

Two lecture, four laboratory hours per week.

6744. Herpetology. (4).

Classification, distribution, life histories, techniques of collection and preservation, natural habitats of North American reptiles and Amphibians. PREREQUISITE: Biology 1600 and 3620.

Two lecture, four laboratory hours per week.

6760. Wildlife Management. (4).

Distribution, identification, population analysis, game mapping techniques, and management of wildlife. PREREQUISITE: Biology 3050 and any one of the following: Biology 3600, 4640, 4644, 4740, 4744.

Two lecture, four laboratory hours per week.

***6800. Marine Invertebrate Zoology. (6).**

A general study of the anatomy, life histories, distributions, and phylogenetic relationships of all marine phyla below the chordates for majors in zoology or geology. Laboratory and field work will be included. PREREQUISITE: Twelve semester hours of biology including general biology or zoology.

6840. Invertebrate Zoology. (4).

The invertebrate animals, exclusive of the insects. With special attention given to phylogeny, organology, and taxonomy. PREREQUISITE: Biology 1600 or its equivalent.

Two lecture, four laboratory hours per week.

7000. Seminar in Biological Literature. (2).

Sources of literature in the field of biology and experience in the utilization of such sources in biological research. Class reports and term papers required. Required of all students as a prerequisite for writing a thesis.

7030. Cytology. (4).

Detailed studies of the functions and composition of individual cellular components, nuclear-cytoplasmic relationships, chromosomal variations and their genetic expression in plants. PREREQUISITE: Biology 1200 and 1600 or equivalent.

Three lecture, two laboratory hours per week.

7070. Cytogenetics. (3).

A discussion of current theories concerning the nature of the gene and the mechanisms of recombination and mutation. A detailed study of chromosome aberrations and their genetic behavior. PREREQUISITE: Biology 3070.

Two lecture, two laboratory hours per week.

7091. Special Problems. (4).

Qualified students may be given special problems which they will investigate. The investigations will be pursued under the supervision of

a member of the graduate staff and reported in the form of a written paper.

7092. Research. (2-4).

The student through consultation, reading, and laboratory work will investigate selected topics in some phase of biology. A formal paper giving a review of the literature and the results of the investigation will be required.

7093. Problems in Zoology. (3-6).

Supervised research on specific problems in marine zoology for graduates. PREREQUISITE: Zoology 6800 or 6600.

7100. Instrumentation. (2).

A consideration of recent developments in biological techniques which may be applied in the study of living organisms.

Two lecture hours per week.

7200. Seminar in Biology. (1).

A consideration of selected topics in the biological sciences in conference with a member of the staff. PREREQUISITE: Consent of the instructor.

Two one-hour conferences per week, hours may be by arrangement if not scheduled.

7250. Advanced Plant Ecology. (4).

Considerations of plant distribution on a worldwide and a local basis with emphasis on the factors influencing plant distribution and growth. PREREQUISITES: Biology 3050 or equivalent.

Two lecture, four laboratory hours per week.

7330. Intermediary Plant Metabolism. (3).

A detailed study of the metabolism of carbohydrates, fats and nitrogen compounds in higher plants. PREREQUISITE: Permission of instructor.

7500. Virology. (4).

Introduction to the viruses. Principles of methodology concerning origin, development, classification, and propagation. PREREQUISITE: General bacteriology and organic chemistry.

Three lecture, two laboratory hours per week.

7530. Bacterial Physiology. (4).

A survey of bacterial physiology including growth, nutrition, biosynthesis, and adaptation. PREREQUISITE: Bacteriology 3500, or its equivalent, and at least one year of chemistry.

Three lecture, two laboratory hours per week.

7600. Seminar in Biology. (1).

A consideration of selected topics in the biological sciences, in conference with a member of the staff. PREREQUISITE: Consent of the instructor.

7720. Mammalian Physiology. (5).

Advanced study of the morphological features of a representative mammal. PREREQUISITE: Biology 3620 and permission of instructor.

Two lecture, six laboratory hours per week.

7730. Mammalian Physiology. (5).

A concentrated investigation of the functional activities of a typical mammal. PREREQUISITE: Biology 3730 and Biology 3620.

Two lecture, six laboratory hours per week.

7750. Animal Ecology. (4).

Relationships of animals to their environments with special emphasis upon population dynamics and ecological relationships at the population level. PREREQUISITE: Biology 3050 and 1600.

Two lecture, four laboratory hours per week.

7840. Protozoology. (4).

A survey of the free living and parasitic protozoa with consideration given to structure, taxonomy, habitat, and life history. PREREQUISITE: Five hours of zoology or its equivalent.

Two lecture, four laboratory hours per week.

7844. Advanced Parasitology. (4).

An advanced course in animal parasitology with emphasis on techniques and experimental approaches in parasitology. PREREQUISITE: Permission of instructor.

Two lecture, four laboratory hours per week.

7920. Advanced Insect Morphology. (3).

Comparative studies of selected insect groups. PREREQUISITE: Biology 3920 or the equivalent.

One lecture, four laboratory hours per week.

7930. Advanced Insect Physiology. (3).

A detailed study of the physiology of various organ systems of insects. PREREQUISITE: Biology 3930 or the equivalent.

One lecture, four laboratory hours per week.

7940. Advanced Systematic Entomology. (3).

An advanced course in insect taxonomy. The principles of insect nomenclature with specific emphasis given to procedures. Intensive study is made in particular groups. PREREQUISITE: Biology 3940 or its equivalent.

One lecture, four laboratory hours per week.

7941. Classification of Insect Larvae. (3).

A survey of the holometabolous orders of insects with primary emphasis on the classification of the larval stages of these insects and with secondary emphasis stressing larval habitata, collecting larvae and techniques of rearing larvae. A student collection will be required. PREREQUISITE: Biology 3900 and 3940; 3930 strongly recommended.

One lecture, four laboratory hours per week.

7960. Applied Entomology. (4).

Identification, ecology, and distribution of insect pests in this area. Principles and methods of control will be included. PREREQUISITE: Permission of instructor.

Two lecture, four laboratory hours per week.

7996. Thesis. (6).

All students majoring in Biology must write a thesis based on research done under the supervision of his major professor.

*These courses are taught at the Gulf Coast Research Lab, Ocean Springs, Mississippi. Memphis State University residence credit is given through affiliation with the laboratory.

CHEMISTRY

PROFESSOR JESSE WELLS FOX, *Chairman*
Room 210, J. M. Smith Hall

Students majoring in chemistry for the Master of Science degree are required to present as a prerequisite for admission a satisfactory record for a baccalaureate degree or its equivalent. Normally 4 years (32 semester hours) of undergraduate work in chemistry will be required. Students who are deficient in undergraduate work may be admitted and the deficiencies removed without graduate credit. Candidates for admission are strongly urged to take the Graduate Record Examination so that their scores may be submitted along with their applications. Three semesters of German including one semester of scientific German are normally required as a prerequisite; however, any student proficient in German, but lacking formal college credit, may petition the head of the Department of Chemistry for permission to take an examination in lieu of enrolling in the courses.

General Master's degree requirements are found on page 47. Departmental requirements consist of the satisfactory completion of 30 hours of graduate work including:

- A. Chemistry 7111, 7211, 7311, and 7411.
- B. Sufficient additional courses (excluding research) resulting in a minimum of 18 hours in chemistry and a minimum of 24 hours of graduate work. Courses outside the chemistry department must be approved by the student's major adviser and the chairman of the department of chemistry.
- C. Participation in seminar during the entire period of residence (excluding summer terms) is required. A minimum of 2 semesters must be presented for a degree and no more than 3 hours credit may be counted toward the 30 semester hours required for graduation.
- D. Research and a thesis (Chemistry 7996) acceptable to the students committee (6 hours).
- E. A final oral examination.
- F. A student must have a 3.0 (B) average on all courses presented for graduation exclusive of research (Chemistry 7996) and seminar (Chemistry 7913, 7923, 7933, and 7943).

Chemistry may be used as a collateral area by other academic departments provided the student has the necessary undergraduate prerequisites.

6011. Biochemistry. (4).

An elementary course dealing principally with chemistry of carbohydrates, proteins, lipids, vitamins, etc., digestion and absorption, with consideration also given to certain physio-chemical topics including the colloidal state, colligative properties, equilibria and buffer mechanisms, and the electrolyte structure of body fluids. PREREQUISITE: Chemistry 3312.

Two lecture, four laboratory hours per week.

6012. Biochemistry. (4).

The topics include blood and other tissues, the excretions, energy metabolism, intermediary chemical metabolism. PREREQUISITE: Chemistry 4011.

Two lecture, four laboratory hours per week.

6200. Advanced Analytical Chemistry. (3).

An advanced treatment of the theory and calculations of gravimetric and titrimetric analysis. PREREQUISITE: Chemistry 3412, or permission of the instructor.

Three lecture hours per week.

6220. Instrumental Analysis. (3).

Applications of recent developments in the field of instrumental analysis. The theory and use of colorimetric, spectrophotometric and electrochrometric methods of chemical analysis. Experience will be gained in the use of the Beckman DU spectrophotometer and other related colorimetric and spectrometric instruments. PREREQUISITE: Chemistry 4210.

Two lecture, four laboratory hours per week.

6310. Organic Qualitative Analysis. (3).

Characterization of known and identification of unknown organic compounds by solubility tests, class reactions, specific test reagents, and the preparation of derivatives. PREREQUISITE: Chemistry 2200, 3312.

Two lecture, six laboratory hours per week.

6900. Chemical Literature. (1).

Use of the chemical literature and the writing of technical reports. PREREQUISITE: Junior standing in chemistry.

One lecture hour per week.

7011. Principles of Chemistry. (3).

This course, open only to high school science teachers, covers the fundamental principles of chemistry usually encountered in a general chemistry course, but presented in greater depth. Topics included are: atomic structure, bonding, periodicity, acid-base theory, chemical equilibrium, ionic equilibria and qualitative analysis, oxidation potentials, electro-chemistry and nuclear chemistry. The quantitative aspects of most of these topics are emphasized. This course cannot be applied toward a major or minor in chemistry or physics. PREREQUISITE: One year college chemistry or the permission of the instructor.

Three lecture, three laboratory hours per week.

7012. Principles of Chemistry. (3).

This course, open only to high school science teachers, is a continuation of Chemistry 7011. It includes a review of atomic structure and bonding; an introduction to thermodynamics and chemical kinetics; ionic equilibria in solution; electro-chemistry and oxidation-reduction; and an application of fundamental principles to the systematic study of the chemistries of the elements. Periodicity of structure and its relationship to the properties of the elements will be emphasized. PREREQUISITE: Chemistry 7011 or its equivalent.

7020. Principles of Organic Chemistry. (3).

This course is open to high school science teachers. It is the systematic presentation of the fundamental principles of organic chemistry with interpretation of structure and properties in accord with modern atomic and molecular theory. Emphasis is placed upon the courses and uses of organic compounds in our daily lives. Special topics will be developed that will familiarize the high school teacher with the recent advances in the field and areas suitable for special projects for high school students. Laboratory experiments and demonstrations will be developed and performed which may be adapted for use in high school

courses. This course cannot be applied toward a major or minor in chemistry or physics. PREREQUISITE: Two years of college chemistry or Chemistry 7010.

Three lecture, three laboratory hours per week.

7030. Analytical Chemistry. (3).

This course stresses recent analytical methods. It covers the fundamental principles of analytical chemistry including some gravimetric and titrimetric methods but with major emphasis on modern instrumental techniques. These include: ultraviolet, visible and infrared spectrophotometry, potentiometric, conductometric, voltametric and electrolytic methods; and both liquid and gas phase chromatography. PREREQUISITE: Two years of college chemistry or Chemistry 7011.

Three lecture hours per week.

7051. Chemistry-Biology. (3).

This course, open only to high school science teachers, is an integrated study of chemistry and its relationship to the study of biological sciences. Lectures will present the fundamental principles of chemistry and their biological implications and applications. Topics which will be discussed in detail include: atomic and molecular structure and bonding, ionic equilibria in solution, colligative properties of solutions, organic chemistry, the chemistry of the cell contents, proteins and enzymes, and the function of DNA, RNA and protein synthetics; control of cell metabolism. PREREQUISITE: Twelve to sixteen hours of Biology.

7052. Chemistry-Biology. (3).

Continuation of Chemistry 7051.

7111. Advanced Inorganic Chemistry. (3).

A survey of theoretical and applied inorganic chemistry. Stress is placed on nuclear and extranuclear structure, and the relationship of bonding to the properties of elements and compounds.

Three lecture hours per week.

7112. Advanced Inorganic Chemistry. (3).

A continuation of Chemistry 7111.

Three lecture hours per week.

7113. Inorganic Preparations. (3).

Preparation of typical inorganic compounds illustrating special techniques. PREREQUISITE or COREQUISITE: Chemistry 7111.

One lecture, six laboratory hours per week.

7211. Principles of Analytical Chemistry.

An advanced study of the theory and practice of quantitative analysis. PREREQUISITE: Chemistry 3411.

Three lecture hours per week.

7212. Advanced Analytical Chemistry. (3).

A continuation of 7211. Study of physical chemical theory in chemical analysis.

Three lecture hours per week.

7311. Advanced Organic Chemistry. (3).

Modern theories of molecular structure as applied to organic systems and the relationship of these concepts to physical and chemical prop-

erties are treated. Special attention is given to the nature of covalent bonds, substituent effects, resonance theories and applications of absorption spectroscopy. PREREQUISITE: Chemistry 3312, corequisite: Chemistry 3411.

Three lecture hours per week.

7312. Advanced Organic Chemistry. (3).

An extensive treatment of the structure and mechanism of reactions of aliphatic, carbocyclic, and heterocyclic materials. Applications of methods of synthesis as applied to practical problems of preparation of organic compounds are included. PREREQUISITE: Chemistry 7311.

Three lecture hours per week.

7330. Organic Preparations. (3).

The preparation and properties of organic compounds. Introduction to research methods. PREREQUISITE: Chemistry 2200, 3211, 3212.

One lecture, four laboratory hours per week.

7360. Chemistry of Natural Products. (3).

A study of the structures, reactions and methods of synthesis of naturally occurring organic compounds. Particular emphasis will be placed on alkaloids, steroids and terpenes. PREREQUISITE: Chemistry 3212.

Three lecture hours per week.

7411. Advanced Physical Chemistry. (3).

Thermodynamics in relation to chemical equilibria and reactivity, including such topics as isothermal and adiabatic expansions, cyclic processes, heat content, specific heats, entropy, enthalpy, free energy, and vapor pressures. PREREQUISITE: Chemistry 3412; Mathematics 2322.

7412. Advanced Physical Chemistry. (3).

Special topics of general interest in advanced physical chemistry, but primarily emphasizing the statistical approach to thermodynamics based on Boltzmann statistics and the partition function, the statistical concept of thermodynamic functions, and molecular symmetry and group theory. PREREQUISITE: Chemistry 7411.

Three lecture hours per week.

7511. Advanced Biochemistry. (3).

The chemistry of substances found in living systems. PREREQUISITE: Chemistry 3312. Prerequisite or corequisite: Chemistry 3411 or permission of instructor.

Three lecture, three laboratory hours per week.

7512. Advanced Biochemistry. (3).

The chemistry of metabolic processes and energy transformations. PREREQUISITE: Chemistry 7511.

Three lecture, three laboratory hours per week.

7910. Special Problems in Chemistry. (3).

Individual investigation and report under the guidance of the student's major adviser.

7913. Chemistry Seminar. (1).

General meetings for presentation and discussion of recent topics of interest. Graduate students and faculty participate. Required of all resident graduate students.

7923. Chemistry Seminar. (1).

General meetings and presentation and discussion of recent topics of interest. Graduate students and faculty participate. Required of all resident graduate students.

7933. Chemistry Seminar. (1).

General meetings for presentation and discussion of recent topics of interest. Graduate students and faculty participate. Required of all resident graduate students.

7943. Chemistry Seminar. (1).

General meetings for presentation and discussion of recent topics of interest. Graduate students and faculty participate. Required of all resident graduate students.

7996. Thesis. (6).

An original investigation undertaken with the supervision of a member of the graduate staff. This investigation will furnish the material for the thesis.

PHYSICAL SCIENCE

For the collateral area, 9 or 12 semester hours in courses approved by the Chairman of the department and the student's major professor.

6050. Glass Manipulation. (2).

A laboratory course in the fundamentals of glass manipulation and the construction and repair of simple laboratory apparatus.

Six laboratory hours per week.

6070. Physical Science for High School Teachers. (3).

A study of the fundamental principles of chemistry and physics as they relate to the understanding and teaching of these sciences in high school.

Three lecture hours per week.

6071. Physical Science for High School Teachers. (3).

A study of the fundamental principles of astronomy, meteorology, and geology as they relate to the understanding and teaching of these sciences in high school. PREREQUISITE: Chemistry 6070.

Three lecture hours per week.

6080. Space Science. (3).

This course, open only to high school science teachers, is a basic introductory course in astronautics. It includes a history of astronautics, a description of the solar system, and some astronomical objective in our solar system. It treats the methods of space physics, interplanetary environment, astrogeology and astrobiology. Also included in the field of space engineering are such topics as vehicle development, aerodynamics, guidance and control systems, propulsion systems and structural design. A brief discussion of basic and human factors in space medicine are also presented. PREREQUISITE: One year of general physics.

7040. Astronomy. (3).

A course in astronomy open to junior and senior high school teachers of science.

ENGLISH

PROFESSOR WILLIAM OSBORNE, *Chairman*
Room 467, Patterson Hall

In the department of English, graduate students who select English as a major area will consult their major adviser as to the program of study. The basic requirements are as follows:

Prerequisites: A minimum of 18 hours in upper division English courses, with a minimum grade point average of 2.5 in those courses.

Requirements: A minimum of 18-21 hours in graduate English courses, at least 12 of which must be in courses numbered above 7000. Each student's program must include the following:

- A. Bibliography and Methods of Research (3): English 7801.
- B. Chaucer or Studies in Medieval Literature (3): English 6231 or 7211.
- C. Studies in Shakespeare or Studies in Renaissance Literature (3): English 7231 or 7212.
- D. The literature of two additional periods of English or American literature (6).
- E. All graduate courses in English (3-6): selection to be made with approval of adviser.

Oral comprehensive examination.

Reading knowledge of one foreign language (French, German, Latin, or Greek), to be demonstrated by (1) 12 hours credit at the minimum grade in each course of C, earned within the last five years prior to entry into Graduate School or by (2) reading examination by date of completion of 9 semester hours of graduate courses in English.

Thesis (3 or 6)—optional.

A 3.0 average in English courses.

For the collateral area, requirements in the Department of English are as follows:

Prerequisites: A minimum of 12 hours in upper division English courses, with a minimum grade point average of 2.5 in those courses.

Requirements: A minimum of 12 hours in graduate English courses, at least 6 of which must be in courses numbered above 7000.

Each student in English must complete at least
 3 hours in English literature before 1800 and at least
 3 hours in English literature after 1800.

A 3.0 average in English courses.

6231. Chaucer. (3).

A study of Chaucer's growth as a literary artist, including a chronological reading of representative works and discussion of their philosophical and social context.

6234. Milton. (3).

A study of Milton's development as a literary artist, with emphasis on his poetry but with some attention to his prose.

6241. The English Novel. (3).

Reading of major English novels from the Renaissance to the mid-nineteenth century related to study of the origin and development of the genre.

6242. The English Novel. (3).

A study of major English novels from the mid-nineteenth century to the present, with attention to developments in the genre.

6251. English Drama. (3).

A study of the development of the genre in England from medieval times to 1642.

6252. English Drama. (3).

A study of English drama from 1660 to the present, with attention to developments in the genre.

6351. American Drama. (3).

The development of American drama as a literary form studied in relation to the English and European tradition and to currents in American thought.

6501. History of the English Language. (3).

Study of the relationship of English to other Indo-European languages; of etymology and the effects of word-borrowing, word-information, and semantic change on English vocabulary; and of the development of English sounds, inflections, and syntax.

7001. Language and Composition. (3).

This course, open only to high school English teachers, deals with linguistic principles and their application to English grammar and composition. There will be a strong emphasis on the writing and analysis of essays. This course cannot be applied toward a major or collateral area in English.

7211. Studies in Medieval Literature. (3).**7212. Studies in Renaissance Literature. (3).*****7213. Studies in Seventeenth Century Literature. (3).*****7214. Studies in Restoration and Eighteenth Century Literature. (3).*****7221. Studies in the Literature of the Romantic Period. (3).*****7222. Studies in Victorian Literature. (3).*****7223. Studies in Contemporary Literature. (3).*****7231. Studies in Shakespeare. (3).*****7321. Studies in American Literature before 1860. (3).*****7322. Studies in American Literature since 1860. (3).*****7501. Studies in English Linguistics. (3).**

*Courses designated *Studies* provide for specialized work in the literature and in the scholarship of periods, figures, and genres. Content and focus of *Studies* courses may vary from semester to semester. Students will be expected to engage in research leading to the production of substantial papers. Ideally they should have had previous work in the material of these courses. They should, in any case, enroll in *Studies* for which they have had some relevant preparation.

7701. Literary Criticism. (3).

The major documents in Western criticism, from Plato to the present.

7801. Bibliography and Methods of Research. (3).

Examination of bibliographical aids for the study of English and American literature, problems involved in various types of research, and study of the presentation and documentation of scholarly writing.

7996. Thesis. (3-6).

A prospectus for the thesis must be approved by the student's adviser and the departmental chairman before the student registers for this course. Formal application for writing a thesis must be filed with the Dean of the Graduate School at the time of registration. The completed thesis must be approved by at least two readers.

GEOGRAPHY

PROFESSOR PAUL HARDEMAN SISCO, *Chairman*
Room 109, Johnson Hall

In the department of Geography, graduate students who select Geography as a major area will consult their major adviser as to the program of study.

All graduate majors in the department of Geography must have credit for Geography 6111, 6121, and 7503 or their equivalents before being admitted to candidacy. In addition, before they receive the Master's Degree, they must complete either 7202 or 7212, as well as 7461 and 7601 or their equivalents.

Majors will attempt a thesis only with the recommendation of the graduate school faculty in the department.

For the collateral area, nine semester hours as shown below:

- A. M.A. Degree requirements—nine semester hours as approved by the adviser, with a maximum of 3 semester hours in the earth sciences.
- B. M.S. Degree requirements—nine semester hours as approved by the adviser, with a minimum of six semester hours in the earth sciences.

****6111. Earth Science I. The Atmosphere. (3).**

An analytical study of the physical processes underlying the behavior and responses of the atmosphere and the application of this general body of knowledge to an understanding of the relationship of man to this important element of his environment.

****6121. Earth Science II. The Earth. (3).**

An analytical study of land forms, their changes and their uses to man.

****6122. Earth Science III. The Soil. (3).**

An analytical study of soils to include their physical, chemical, and biological qualities, and their classes, uses, and measures of conservation.

****6131. Earth Science IV. The Oceans. (3).**

An analytical study of the oceans to include their physical, chemical, and biological qualities; their movements, resources, climate influences, and their importance for transportation.

****Geography 6111, 6121, 6122, and 6131 are designed to be of interest and value to students in the physical sciences as well as those in the social sciences; assignments include lectures, laboratory work, and field trips.**

- 6304. Western Europe. (3).**
A geographic analysis of the lands west of the Iron Curtain.
- 6305. The Soviet Realm. (3).**
A regional analysis of Soviet Union and its satellites.
- 6306. Asia South of the Soviet Realm. (3).**
A consideration of the significance of regional differences in Japan, China, and India, and a brief survey of the remaining areas.
- 6316. The South. (3).**
A specialized study of selected regions in the South with emphasis on changes and trends in the cultural-physical complex.
- 6317. Tennessee. (3 or 4).**
A comparison of the human-use, political, and physical regions of the state.
- 6431. Urban Land Uses. (3).**
A study of the allocation of land for urban uses; the adjustments and adaptations to existing physical phenomena; the patterns, functions, and forms of specific urban land areas; and some of the continuous problems of urban development and growth.
- 6432. City Planning. (3).**
The fundamental principles of urban planning, basic elements of a city plan, and the necessity of continuity in planning administration.
- 6433. Urban Renewal. (3).**
Changing urban land uses, first in areas which must improve or rebuild obsolete patterns, functions, and forms; and second in areas with acceptable uses, structures, and institutions which in the interest and welfare of all the people must have additional space for growth and expansion.
- 6611. Regional Field Study. (6).**
A comparative study of selected regions of the world, including library study of the regions to be traversed, a minimum of sixteen days to study in the regions, and oral and written reports. **PREREQUISITE:** Permission of the instructor.
- 7123. Physiography of the Eastern United States. (3).**
Systematic study of the evolution and distribution of landscape forms in the eastern United States, **PREREQUISITE:** One of the following courses: Geography 1102, 6121, or Geology 1101.
- 7124. Physiography of the Western United States. (3).**
Systematic study of the evolution and distribution of landscape forms in the western United States. **PREREQUISITE:** One of the following courses: Geography 1102, 6121, or Geology 1101.
- 7202. Economic Geography: Agricultural. (3).**
A survey of agricultural products and agricultural regions of the world, and the role of agriculture in world economy.
- 7212. Economic Geography: Industrial and Commercial. (3).**
A global survey of the extractive industries, of the manufacturing regions, and of the major trade areas and trade routes.

- 7412. Conservation of Natural Resources. (3).**
A survey of the current problems and responsibilities relating to the conservation of our natural resources on the local, state, and national level.
- 7422. Political Geography. (3).**
The content and philosophy of political geography as illustrated by a broad survey of major writers in the field followed by student analysis of individual nation-states.
- 7434. Transportational Lands. (3).**
Planning and allocation of urban land used for water, rail, street, and air transportation.
- 7435. Commercial Lands. (3).**
Planning, analysis, and allocation of urban land used for commercial purposes; particularly, the Central Business District, commercial strips along arterial streets, and the new outlying shopping centers.
- 7441. Population Geography. (3).**
A survey of the density, distribution, migrations, trends, and settlement patterns of world population.
- 7451. Geographic Tools and Techniques. (3).**
An analytical study of the tools and techniques for effective instruction at different levels.
- 7461. Development of Geographic Thought. (3).**
A course vital in acquainting the serious minded geography student with the various types and sources of geographic literature, its nature and content, and the growth and development of geographic thought.
- 7503. Advanced Cartography. (3).**
A study of the ways by which data are presented and interpreted through maps, charts, graphs, and tables.
- 7521. Quantitative Methods. (3).**
The application of quantitative methods in geographic analysis. **PREREQUISITE:** Permission of the instructor.
- 7601. Seminar in Regional Geography. (3).**
- 7602. Seminar in Climatology. (3).**
Systematic study of the classification and distribution of climates. **PREREQUISITE:** Geography 6111.
- 7621. Special Problems. (1-3).**
(May be repeated for a maximum of 9 credits). Independent investigation of a research problem selected in consultation with the instructor.
- 7996. Thesis. (3-6)**
A student registering for this course must have demonstrated, to two or more members of the geography staff, superior ability in the field of geographic content and in the organization and presentation of subject matter.
Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of The Graduate School at the time of registration.
PREREQUISITE: Approval of supervising teacher and department chairman.

HISTORY

PROFESSOR AARON M. BOOM, *Chairman*
Room 342, Administration Building

In the Department of History the Master of Arts degree is offered either with thesis (Plan A) or without thesis (Plan B). Teachers and prospective teachers of history and social science may select either plan. One who expects to pursue work beyond the Master's degree must select Plan A. Students will consult the departmental adviser as to the program of study. The basic requirements are as follows:

Prerequisites: A minimum of 18 semester hours in undergraduate history, except in special cases approved by the Dean of The Graduate School and the Chairman of the Department of History.

Requirements: (1) A total of 33 semester hours for candidates not writing a thesis; (2) A total of 30 semester hours for candidates writing a thesis; (3) No more than 21 semester hours may be taken in one field (United States, Europe, Latin America), including the 6 hours of thesis; (4) A minimum of 15 hours of 7000 level courses in history; (5) A maximum of 6 hours may be taken in a field outside history; (6) History 7000 must be completed by each student; (7) Candidates for the degree must pass a comprehensive written examination conducted by three staff members designated by the student and his adviser. The written examination will be administered once each semester and once during each of the summer terms on a date published by the department. A follow-up oral examination is optional with the examining committee.

For the collateral area, a minimum of 9 semester hours in one field of history (such as U.S., Latin American, European); and at least 3 hours must be in 7000 level courses. **Prerequisites:** a minimum of 9 semester hours in undergraduate history, except in special cases approved by the Chairman of the Department of History.

6160. History of Russia before 1801. (3).

A survey of Russia from early times to the beginning of the reign of Alexander I.

6161. History of Russia from 1801 to 1917. (3).

A survey of Russia from 1801 through the Revolution of 1917.

6240. History of Mexico. (3).

A survey of the political, economic, social, and cultural development of Mexico from ancient times to the present.

6250. History of Brazil. (3).

A survey of the political, economic, social, and cultural development of Brazil from early times to the present.

6370. The Medieval World. (3).

A study of the history of institutional forms beginning with the decline of the Roman Empire and ending with the beginnings of Renaissance life.

6380. The Renaissance World. (3).

A study of the achievements and forces, political and economic, social and cultural, creative and intellectual, which made up the foundation of modern European civilization.

6390. **Europe in the Age of the Reformation.** (3).
A consideration of the religious struggles, the social and intellectual milieu in the sixteenth and early seventeenth centuries.
6400. **Europe in the Age of Reason.** (3).
A consideration of the growth of royal absolutism, the political conflicts, the baroque synthesis, the rise of modern science, and enlightenment thought in the seventeenth and early eighteenth centuries.
6440. **The Era of the French Revolution.** (3).
A study of the Enlightenment, the French Revolution, and the Napoleonic era.
6450. **Europe in the Nineteenth Century.** (3).
A study of Europe during the period 1815-1914.
6460. **Europe in the Twentieth Century.** (3).
The study of Europe since the outbreak of World War I.
6501. **Intellectual History of Europe I.** (3).
Topics in the history of European thought and culture from the thirteenth through the seventeenth century.
6502. **Intellectual History of Europe II.** (3).
Topics in the history of European thought and culture from the eighteenth century to the present.
6620. **Colonial America, 1607-1763.**
A study primarily of the political development and institutions of the English Colonies in America before 1763, with some attention given to Spanish, French, and Dutch colonization.
6630. **Era of the American Revolution, 1763-1790.**
A study of the origins and conduct of the American Revolution, the United States under the Articles of Confederation, and the writing and ratification of the Constitution.
6640. **Early National Period, 1790-1850.** (3).
A study of American history from unification until the beginnings of division.
6660. **Civil War, 1850-1865.** (3).
A study of division and conflict.
6670. **Reconstruction, 1865-1877.** (3).
A study of national and sectional issues following the Civil War.
6680. **Emergence of Modern America, 1877-1914.** (3).
A study of the United States from the end of Reconstruction to the outbreak of World War I.
6700. **Recent American History, 1914—present.** (3).
A study of the United States from World War I to the present.
7000. **Introduction to Historical Research and Writing.** (3).
A study of the mechanical techniques of historical composition, the nature and use of various kinds of historical source materials, bibliographical aids, and methods of historical synthesis. Required of all history majors.

7120. **Studies in British History Since 1485.** (3).
Conference and reports, three hours a week.
7160. **Studies in the Soviet Union and World Communism.** (3).
Conference and reports, three hours a week.
7210. **Studies in Latin American History.** (3).
Conference and reports, three hours a week.
7320. **Studies in Ancient History.** (3).
Conference and reports, three hours a week.
7376. **Studies in the Middle Ages.** (3).
Conference and reports, three hours a week.
7400. **Studies in Modern European History.** (3).
Conference and reports, three hours a week.
7521. **Studies in European Diplomacy, 1848-1919.** (3).
Conference and reports, three hours a week.
7522. **Studies in European Diplomacy, 1919-1939.** (3).
Conference and reports, three hours a week.
7630. **Studies in Early American History (to 1800).** (3).
Conference and reports, three hours a week.
7640. **Studies in United States History, 1800-1865.** (3).
Conference and reports, three hours a week.
7680. **Studies in United States History, 1865-1917.** (3).
Conference and reports, three hours a week.
7700. **Studies in United States History, 1917-1950.** (3).
Conference and reports, three hours a week.
7871. **Studies in United States Urban History.** (3).
Conference and reports, three hours a week.
7920. **Studies in Southern History.** (3).
Conference and reports, three hours a week.
7940. **Studies in the American West.** (3).
Conference and reports, three hours a week.
7960. **Studies in State and Local History.** (3).
Conference and reports, three hours a week.
7996. **Thesis.** (6).
The student must write and defend satisfactorily a thesis on a subject approved by his major professor.

MATHEMATICS

PROFESSOR HOWARD S. KALTENBORN, *Chairman*
Room 429, J. M. Smith Hall

For the degree of Master of Science, a student may complete both a major and a collateral area in either mathematics or statistics, or he may complete a major in one of these fields and a collateral area in any department in which he is qualified to do graduate work. For the degree of Master of Science in Teaching, a student may complete a major in mathematics and a collateral area in chemistry, biology or physics.

The minimum requirements for the master's degrees are as follows:

Master of Science	33 hours without a thesis, or 27 hours with 3-hour thesis, or 24 hours with 6-hour thesis
Master of Science in Teaching	33 hours

The candidate will be examined in the work he has taken in mathematics or statistics and, where applicable, in his collateral area and thesis.

The comprehensive examination will be oral.

Mathematics may be used as a collateral area provided the student has the necessary undergraduate prerequisites.

6111. Philosophy of Mathematics. (3).

Logical methods; axiomatic systems; independency and consistency; the nature of mathematics. PREREQUISITE: Mathematics 3111.

6151. History of Mathematics. (3).

The development of mathematics from the earliest times to the present; problem studies; parallel reading and class reports. PREREQUISITE: Mathematics 3111.

6221. Theory of Numbers. (3).

Divisibility properties of integers; prime numbers; congruences; Diophantine equations; quadratic residues; number theoretic functions. PREREQUISITE: Mathematics 3111.

6241. Linear Algebra. (3).

Matrices, vector spaces, linear transformations, polynomials, determinants. PREREQUISITE: Mathematics 2322.

6351. Real Variables. (3).

Continuous functions; uniform continuity; differentiation; integration; improper integrals; sequences and series; power series; uniform convergence. PREREQUISITES: Mathematics 2322, 3111.

6361. Complex Variables. (3).

Complex numbers; point sets and mappings; analytic functions; integration. PREREQUISITE: Mathematics 2322.

6391. Applied Mathematics. (3).

Laplace transforms; Fourier series; partial differential equations. PREREQUISITE: Mathematics 3391.

6392. Applied Mathematics. (3).

Calculus of variations; difference equations; integral equations. PREREQUISITES: Mathematics 3241, 6391.

6411. Topology. (3).

Introductory set theory; metric spaces; topological spaces; mappings; Hausdorff spaces; connectedness and compactness. PREREQUISITES: Mathematics 2322, 3111.

6721. Numerical Analysis. (3).

Finite differences; approximate solutions of algebraic and transcendental equations, with applications. PREREQUISITE: Mathematics 3711.

7171. Workshop in Junior High Mathematics. (3).

This course is designed to provide in-service training, with emphasis on new course content.

- 7173. Workshop in Senior High Mathematics. (3).**
This course is designed to provide in-service training, with emphasis on algebra.
- 7174. Workshop in Senior High Mathematics. (3).**
Continuation of Mathematics 7173, with emphasis on geometry.
- 7181. Introduction to Modern Mathematics. (3).**
Basic theory in the logical foundations of arithmetic; the postulational development of the number system; symbolic logic.
- 7221. Algebraic Number Theory. (3).**
Farey fractions; simple continued fractions; distribution of primes; algebraic numbers; partition function. PREREQUISITE: Mathematics 6221.
- 7222. Algebraic Number Theory. (3).**
Selected topics from advanced theory of numbers. PREREQUISITE: Mathematics 7221.
- 7241. Linear Algebra. (3).**
Invariant direct-sum decompositions; the rational and Jordan forms; inner product spaces; bilinear forms. PREREQUISITE: Mathematics 6241.
- 7261. Algebraic Theory. (3).**
Theory of groups, rings, integral domains, and fields, with applications. PREREQUISITE: Mathematics 3111 or 7181.
- 7262. Abstract Algebra. (3).**
Theory of semi-groups, rings, ideals, modules, integral domains and fields; extension of rings and fields; lattices. PREREQUISITE: Mathematics 7261.
- 7351. Real Variables. (3).**
Functions of variables; continuity; iterated limits; partial differentiation; multiple and iterated integrals; Riemann-Stieltjes integral; Lebesgue theory. PREREQUISITE: Mathematics 6351.
- 7361. Complex Variables. (3).**
Power series; calculus of residues; conformal representations. PREREQUISITE: Mathematics 6361.
- 7381. Calculus for Secondary Teachers. (3).**
Function concept; elementary function theory; selected topics from analytic geometry and calculus.
- 7391. Special Functions. (3).**
Infinite products; asymptotic series; generalized hypergeometric functions; the confluent hypergeometric function. PREREQUISITE: Mathematics 6391.
- 7392. Special Functions. (3).**
Methods of obtaining and using generating functions; orthogonal polynomials with applications. PREREQUISITE: Mathematics 7391.
- 7411. Topology. (3).**
Product spaces; separable spaces; completeness; dimension; simplexes; complexes; chains; homologies. PREREQUISITE: Mathematics 6411.

7511. Geometric Theory. (3).

Foundations of geometry; extensions of Euclidean geometry; non-Euclidean geometry; introduction to projective geometry. PREREQUISITE: Mathematics 3111 or 7181.

7521. Algebraic Geometry. (3).

Erlanger program; linear transformations, subgeometries of projective geometry; metric geometries, inversion geometry. PREREQUISITE: Mathematics 7511.

7681. Probability for Secondary Teachers. (3).

Probability spaces, theory of statistical inference, physical interpretations of probability.

7721. Numerical Analysis. (3).

A continuation of Mathematics 6721; numerical methods for solving applied problems in calculus and differential equations. PREREQUISITE: Mathematics 6721.

7741. Linear Programming Techniques. (3).

Convex sets and linear inequalities; simplex computational procedure, quality problems of linear programming; revised simplex method; parametric linear programming; sensitivity analysis; theory of games. PREREQUISITE: Mathematics 6241.

7743. Non-Linear Programming Techniques. (3).

The theory of non-linear programming including extensions to parametric, integer and stochastic situations. PREREQUISITE: Mathematics 7741.

7996. Thesis. (3-6).

STATISTICS

6611. Statistical Methods. (3).

Intended for students in the engineering, physical and mathematical sciences. Binomial, hypergeometric, Poisson, multinomial and Chi-square distributions; tests of randomness and non-parametric tests; t-tests; tests of hypotheses; correlation analysis. PREREQUISITE: Mathematics 2321.

6613. Introductory Statistical Theory. (3).

Distribution of functions of random variables; limiting distributions; correlation and regression; Neyman-Pearson Lemma; likelihood ratio tests; sufficient statistics; point estimation. PREREQUISITE: Statistics 3631.

6631. Probability. (3).

Stationary and non-stationary stochastic processes; Markov chains and applications; continuous time Markov chains; Poisson processes and applications; Brownian motion; branching processes. PREREQUISITE: Statistics 3631, Mathematics 3241.

7611. Statistical Methods. (3).

Continuation of Statistics 6611. Partitioning of sums of squares; tests for equality of variances and means; one-way and two-way analysis of variance; simple linear regression; multiple regression; simple experimental designs; analysis of covariance. PREREQUISITE: Statistics 6611.

7631. Stochastic Processes. (3).

Stationary and non-stationary stochastic processes; autoregressive processes and correlogram analysis, harmonic-periodogram and spectral analysis; Markoff and diffusion processes. PREREQUISITE: Statistics 6631.

7641. Analysis of Variance. (3).

The analysis of variance in experimental statistics, single and multiple classification, factorials, analysis of designed experiments including randomized blocks, Latin squares, split plots, simple confounded designs, multiple comparisons and orthogonal contrasts. PREREQUISITE: Statistics 6611.

7642. Experimental Design. (3).

Fundamental concepts in designing experiments, justifications of linear models, randomization, principle of blocking, use of concomitant observations, principle of confounding, fractional replication, composite designs, incomplete block designs. PREREQUISITE: Statistics 7641.

7643. Least Squares and Regression Analysis. (3).

Simple, multiple, and curvilinear regression analysis, orthogonal polynomials, analysis of non-orthogonal and incomplete experiments by least squares methods, computer methods for least squares problems. PREREQUISITES: Mathematics 3241, Statistics 6611.

7645. Sampling Techniques. (3).

Planning, execution, and analysis of sampling from finite populations; simple, stratified, multi-stage, and systematic sampling; ratio estimates. PREREQUISITE: Statistics 6611 or Statistics 6613.

7647. Order Statistics and Non-Parametric Methods. (3).

Use of order statistics and other distribution-free statistics for estimation and testing hypotheses, exact non-parametric tests and measures of rank correlation. PREREQUISITE: Statistics 6611 or Statistics 6613.

7651. Theory of Linear Models. (3).

Quadratic forms, point of interval estimations, multivariate normal distribution; linear models, general linear hypothesis of full rank; computing techniques; functional relationships. PREREQUISITES: Mathematics 6241, Statistics 6611, 6613.

7652. Theory of Linear Models. (3).

Regression models; experimental design models; cross-classification model; factorial models; incomplete block models; variance components; mixed models. PREREQUISITE: Statistics 7651.

7654. Inference Theory. (3).

General theory of estimations and sufficiency; maximum likelihood and Bayesian estimations; minimum variance estimations; Neyman-Pearson theory of testing hypotheses; elements of decision theory. PREREQUISITE: Statistics 6613.

MODERN LANGUAGES

PROFESSOR L. GRANT REESE, *Chairman*

Room 230A, Jones Hall

In the Department of Modern Languages, graduate students who select French, German, or Spanish as a major area will be assigned a major adviser by the department chairman. This adviser is to be consulted in all matters concerning the student's program of study.

Prerequisites: (1) A minimum of 18 upper division semester hours or its equivalent in the language of the major (French, German, or Spanish); (2) a reasonable proficiency in the language of the major, to be determined by the department prior to acceptance of the application to The Graduate School.

Requirements: (1) A minimum of 27 semester hours of course work in the major (18 of which must be numbered above 7000) or the alternative of 18 semester hours of course work in the major (12 of which must be numbered above 7000) plus nine graduate semester hours of an approved collateral area; (2) a reading knowledge of an approved second language (other than English) at the proficiency level of two years of lower division study, to be demonstrated by examination prior to the completion of course work; (3) M.A. candidates in French, German, or Spanish who are not native to English must demonstrate adequate control of English by examination prior to the completion of course work. (4) a comprehensive examination, written and oral, after the completion of all course work; (5) a thesis (3 credit hours), in addition to required course work.

FRENCH

6301. French Phonetics. (3).

The theory and practice of French sounds; especially recommended for teachers of French.

6305. French Stylistics. (3).

Translations of English Prose into French with an emphasis on style.

6431. The Modern French Novel. (3).

The French novel from the Revolution to the twentieth century, treating the movements of Romanticism, Realism, and Naturalism as they are reflected in the works of such authors as Balzac, Stendhal, Flaubert, and Zola.

6432. The Contemporary French Novel. (3).

A general survey of the twentieth-century French novel, treating the works of such authors as Proust, Gide, Mauriac, Malraux, Sartre, Camus, Maurois, and others.

6451. The Modern French Drama. (3).

French drama from 1800 to 1870, including such authors as Hugo, de Vigny, de Musset, Scribe, Augier, and Dumas *filis*.

6452. The Contemporary French Drama. (3).

From Becque and his school, the *Théâtre Libre*, and Rostand to the present, with emphasis on the twentieth-century drama and such playwrights as Pagnol, Claudel, Tristan Bernard, Giraudoux, Anouilh, Montherlant, Camus, Sartre, Cocteau, and others.

6471. Nineteenth-Century Poetry. (3).

French poetry from Chenier through the Parnassians and the Symbolists.

- 7301. Advanced Grammar. (3).**
Required of all graduate assistants in French and recommended for all French majors.
- 7401. Old French. (3).**
Introductory seminar. Historical grammar and study of the *Chanson de geste*; also the *Lais* of Marie de France and *Aucassin et Nicolette*.
- 7421. The French Renaissance. (3).**
The new world—literary, as seen in the works of Ronsard and the Pleiade; philosophical and political, in those of Rabelais and Montaigne.
- 7425. Classicism Prior to 1660. (3).**
Precept and example before Corneille: Jean de Mairet. The theater of Corneille and the early plays of Molière.
- 7426. Classicism After 1660. (3).**
The impact of Boileau and *l'Art poétique* in crystallizing the classical principles and pattern. Masterpieces of Molière and Racine. Representative selections from masters of the other *genres* in this period of French literature.
- 7431. Romanticism. (3).**
The rise and decline of French Romanticism in the novel, poetry, and drama: Rousseau and Bernardin de Saint-Pierre; Chateaubriand and Madame de Staël; Lamartine, Vigny, Hugo, Musset, George Sand, Stendhal.
- 7481. Realism and Naturalism. (3).**
The impact of positivism and scientific methods on French literature. Realism in Balzac, Flaubert, and Dumas *fils*; Naturalism in Zola, les Frères Goncourt, and the naturalistic theatre.
- 7491. Proseminar in French Literature. (3).**
Introduction to research through investigations of limited scope. May be repeated for credit.
- 7492. Research in French Studies. (1-6).**
May be repeated for credit toward the French major up to a maximum of six hours.
- 7531. The Age of the Enlightenment. (3).**
Comprehensive study of literary trends and innovations within the major *genres* as related to liberal ideas underlying the philosophy of Montesquieu, Voltaire, Diderot, Rousseau, and their contemporaries.
- 7791. The Teaching of French. (0).**
Required of all graduate assistants in French.
- 7996. Thesis. (3).**
The thesis in French carries three credit hours and must be approved by the candidate's Departmental thesis committee.

GERMAN

- 6421. Mysticism and the Baroque Period. (3).**
Studies in the writings of the great German mystics, emphasizing their influence on the poetics of the Baroque period.

6441. **The Age of Enlightenment.** (3).
Readings in Lessing, Wieland, the early Goethe, the early Schiller, and others, with lectures on the philosophical, political, and social backgrounds.
6461. **Contemporary Prose and Poetry.** (3).
Analysis and discussion of the short stories of Hauptmann, Mann, Schnitzler, Kafka, and others; and the lyrics of Hofmannsthal, Rilke, George, Benn, and others.
6462. **Contemporary Drama.** (3).
Analysis and discussion of plays by Hauptmann, Toller, Kaiser, Paul Ernst, and others.
6481. **The Classical Period.** (3).
Selected plays by Schiller, with lectures on the historical, literary, and philosophical backgrounds.
6482. **The Classical Period.** (3).
The major plays and certain prose works of the young Goethe read and discussed in the light of the age and of the author's development.
7301. **Advanced Grammar.** (3).
Required of all graduate assistants in German and recommended for all German majors.
7303. **History of the German Language.** (3).
The development from Primitive Germanic to New High German.
7304. **Advanced Conversation and Stylistics.** (3).
7401. **Old High German.** (3).
A specialized study of Old High German grammar and representative extant documents augmented by a comparative study of Older Germanic language, history, and literature.
7421. **Middle High German.** (3).
Grammar with selected readings.
7431. **Romanticism.** (3).
German literature of the Early and Late Romantic Eras. Lectures.
7451. **Goethe's Faust.** (3).
Interpretation of Parts I and II with reference to antecedents, genesis, and relationship to the poet's life and times.
7481. **The Age of Realism.** (3).
German literature and thought from 1830 through 1880. Lectures with extensive readings.
7482. **Naturalism, Impressionism, and Expressionism.** (3).
Literary and philosophical movements from 1880 through 1930. Lectures with extensive readings.
7491. **Proseminar in German Literature.** (3).
Introduction to research through investigations of limited scope. May be repeated for credit.
7492. **Research in German Studies.** (1-6).
May be repeated for credit toward the German major up to a maximum of six hours.

7791. The Teaching of German. (0).

Required of all graduate assistants in German.

7996. Thesis. (3).

The thesis in German carries three credit hours and must be approved by the candidate's Departmental thesis committee.

SPANISH

6301. Spanish Phonetics. (3).

The theory and practice of Spanish sounds, especially recommended for teachers of Spanish.

6421. The Golden Age. (3).

A study of Spanish lyric poetry and drama up to 1700.

6422. The Golden Age. (3).

A study of Spanish prose up to 1700.

6431. Contemporary Spanish Prose. (3).

A study of the prose of the Generation of 1898 and after. Outstanding writers in the fields of philosophy, the essay, the novel, and short story from Angel Ganivet to Camilo José Cela and Anna Maria Matute.

6432. Contemporary Spanish Poetry and Drama. (3).

A study of Spanish poetry and drama from the Generation of 1898 to the present. Among the authors studied are Antonio Machado, Juan Ramon Jiménez, Eduardo Marquina, J. Benavente, Alejandro Casona, and F. Garcia Lorca.

6561. Spanish-American Short Story. (3).

A critical analysis of Spanish-American short stories as they reflect predominant social and ethical problems, and the authors' responses to literary influences from Europe and North America.

6562. Spanish-American Novel. (3).

A critical study of representative works by such novelists as Fernandez de Lizardi, Blest Gana, Isaacs, and Guiraldes.

6591. Spanish-American Drama, Poetry, and Essay. (3).

A critical study of the development of the drama and poetry of Spanish America in comparison with and in contrast to the drama and poetry of Spain, and a study of the Spanish-American essay in its political and sociological as well as its literary aspects.

7301. Advanced Grammar. (3).

A thorough and systematic presentation of Spanish grammar with an emphasis on teaching. Required of all graduate assistants in Spanish and recommended for all Spanish majors.

7401. Old Spanish Language and Literature. (3).

Castilian phonology, morphology, syntax, and vocabulary, following upon an introduction to the general characteristics of Ibero-Romance and medieval Spanish dialects. Linguistic and literary study of medieval Spanish texts.

7421. The Picaresque Novel. (3).

Lazarillo de Tormes, *Guzman de Alfarache*, and other novels of the genre in the seventeenth century.

7422. Eighteenth Century Spanish Literature. (3).

The nature and background of eighteenth century Spanish literature. The French influence. Typical works of B. J. Feijoo, Luzan, Cadalso, Moratin, Ramon de la Cruz, Padre Isla and others.

7431. Nineteenth Century Spanish Literature, I. (3).

Romantic poetry and drama studied in the works of such writers as the Duke of Rivas, Espronceda and José Zorrilla. Post romantic poetry and drama. Bécquer. *Costumbrismo*. The romantic and historical novel.

7432. Nineteenth Century Spanish Literature, II. (3).

The regional novel, the realistic novel and the naturalistic novel are studied in the works of such writers as Fernan Caballero, Valera, Perera, Palacio Valdés, Galdos, and Blasco Ibanez. The poetry of Campoamor and Nunez de Arce. The theatre. Orators and historians.

7482. The Modernist Movement. (3).

The characteristics and history of the Modernist Movement in Spanish America and in Spain. A study of the leading *modernists*, including Rubén Dario, Nervo, and Lugones, and Rodo. Pre-Modernistas and Post-Modernism.

7491. Proseminar in Spanish Literature. (3).

Introduction to research through investigations of limited scope. May be repeated for credit.

7492. Research in Hispanic Studies. (1-6).

May be repeated for credit toward the Spanish major up to a maximum of six hours.

7791. The Teaching of Spanish. (0).

Required of all graduate assistants in Spanish.

7996. Thesis. (3).

The thesis in Spanish carries three credit hours and must be approved by the candidate's Departmental thesis committee.

MUSIC

PROFESSOR ROBERT SNYDER, *Chairman*
Room 123B, Music Building

In the Department of Music, graduate students may select from the following degree programs:

- A. Master of Music Education degree, consisting of 9 hours in a music education core, six hours of professional education, and six hours each of applied music, music history and music theory.
- B. Master of Music degree in applied music (composition, piano, voice, organ, violin, violoncello, harp, winds, percussion), music history, and music theory, consisting of the major area (15-17 hours, including thesis or recital), a minor area (6 hours) and music electives (9 hours).
- C. Master of Arts degree in applied music (see above), music history and music theory, consisting of a major area (15-18 hours, including thesis or recital), music history and music theory electives (9-12 hours) and outside minor (humanities). A language proficiency is required for the M.A. in music literature.

For the collateral area, 12 semester hours, to be divided into two six-hour sequences, are required.

Examinations in Music Theory, Music History, and Applied Music are required before a student is admitted to graduate standing.

Further information concerning prerequisites may be obtained by writing to the Chairman of the Department of Music.

7000. Bibliography and Research Methods. (3).

An introduction to methods in research and bibliographic aids, and an evaluation of those aids which are considered most essential for musical research.

7010. Graduate Ensemble. (1).

Graduate students will be required to participate in ensemble during each semester in residence or a minimum of two semesters. Specific ensemble assignments will be made by the faculty adviser.

7030. Composition. (3).

Free composition in all forms. Applicants to this course are required to submit original works in various forms and media as proof of maturity and technical preparation for graduate work. The course number may be repeated with the instructor's permission for successive semesters.

7031. Theory I. (3).

Advanced harmony and counterpoint in sixteenth, seventeenth, and eighteenth century styles. Writing and analysis in the contrapuntal style of the sixteenth century in four to eight voices, triple and quadruple counterpoint, pre-fugal styles. Italian and English madrigal. Eighteenth century contrapuntal technique; invention, chorale elaboration, suite, two- and three-voice fugues in the style of Bach and Handel.

7032. Theory II. (3).

Advanced harmony and counterpoint in eighteenth, nineteenth and twentieth century styles. Writing and analysis in the larger eighteenth century forms; four- and five-voice figures, double fugue, chaconne, passacaglia, and orchestral forms. Chromatic harmony. Impressionism. Harmonic and contrapuntal practices in the twentieth century.

7033. Pedagogy of Theory. (3).

A practical course in classroom procedure. Demonstrations by students and instructor in teaching the rudiments, elementary and advanced theory, various styles of counterpoint, and ear training. A study of various theoretical systems. Bibliography.

7034. Analytical Techniques. (3).

Techniques of analysis of style and structure of music from all periods of the history of music.

7036. Advanced Orchestration. (3).

Investigation of orchestration practices of the great composers from the classical period to the present. Sections of non-orchestral works by representative composers will be orchestrated in the style of the period of their composition.

7037. Acoustics of Music. (3).

Designed to acquaint the student with the physical properties of sound, their relations to instrumental sound production, and the effect

of architecture and interior design upon sound and especially upon musical performance.

7131. Medieval Music. (3).

Pre-Christian music; Eastern music; chant; liturgies; notation, instruments; performance practice.

7132. Renaissance Music. (3).

The development of polyphonic and homophonic forms from Plainchant; the role of instrumental music; performance practice.

7133. Baroque Music. (3).

Origins of large vocal forms; rise of instrumental ensembles; performance practice, keyboard literature; the concerto principle.

7134. Classic Music. (3).

The sonata concept in music through Beethoven; opera; chamber music; performance practice.

7135. Romantic Music. (3).

The expansion of the sonata concept; origins of musical romanticism; music drama and symphonic poem; Lieder; character piece; Nationalism.

7136. Music in the Twentieth Century. (3).

Music since Debussy and Mahler with emphasis on current developments and techniques.

7137. Studies in Music History.

Study in depth in music literature of a particular genre (opera, sonata, art song, etc.) or the life and work of a particular composer (Beethoven, Schuetz, Monteverdi, Handel, etc.). May be repeated for credit.

7231. Advanced Conducting. (3).

Conducting the concert band, the symphony orchestra, and the chorus in the larger musical forms. Emphasis on interpretation. PREREQUISITE: Permission of Instructor.

7232. Music Education Seminar. (3).

Historical development and basic philosophies in music education. Current trends in school music, curricula, and testing programs. Evaluation of new methods and materials.

7921. Chamber Music. (2).

An elective course in the performance of music in various styles, periods, media. Open to pianists, instrumentalists, and singers with technical proficiency equivalent to undergraduate senior level. Public performance required each semester.

7994. Recital. (3).

Required of the applied music major. Application for credit for the recital must be filled out on an approved form after consultation with the major adviser and filed with the Dean of the Graduate School.

7996. Thesis. (3-6).

Required of the music history, music theory and composition majors. The composition or compositions should be of suitable nature to provide for practical performance in public recital or concert. Application

for credit for the thesis must be filled out on an approved form after consultation with the major adviser and filed with the Dean of The Graduate School.

APPLIED MUSIC

- 7320. Brasses. Individual Instruction. (2).
- 7420. Organ. Individual Instruction. (2).
- 7520. Percussions. Individual Instruction. (2).
- 7620. Piano. Individual Instruction. (2).
- 7720. Strings. Individual Instruction. (2).
- 7820. Voice. Individual Instruction. (2).
- 7920. Woodwinds. Individual Instruction. (2).
- 7340. Brasses. Individual Instruction. (4).
- 7440. Organ. Individual Instruction. (4).
- 7540. Percussions. Individual Instruction. (4).
- 7640. Piano. Individual Instruction. (4).
- 7740. Strings. Individual Instruction. (4).
- 7840. Voice. Individual Instruction. (4).
- 7940. Woodwinds. Individual Instruction. (4).

APPLIED MUSIC (INDIVIDUAL LESSONS)

ADMISSION TO GRADUATE STANDING: Information regarding the qualifications for admission to an applied music course at the graduate level may be obtained by writing to the Chairman of the Department of Music. Applicants who fail to meet requirements for graduate standing may register for undergraduate credit until the graduate requirements are met.

FEES: See page 36 of this bulletin. Fees are paid to the University at the office of the Business Manager.

CREDITS AND GRADES: Two semester hours of credit will be granted for one thirty-minute lesson weekly; four semester hours of credit will be granted for two thirty-minute lessons weekly. Practice hours will be determined by the instructor to meet the needs of the student. Grades are awarded on the same basis and have the same significance as in any other subject.

EXAMINATIONS: Each student will prepare and perform for members of the faculty of the Department of Music suitable selections and technical exercises of a grade of difficulty appropriate to graduate standing. Examinations will be held in the specified rooms on days set aside for this purpose near the end of each semester. Credit for the course will not be granted to any student who fails to take the examination.

REGISTRATION: Students will register for individual lessons at the same time and in the same manner that they register for other courses.

PHILOSOPHY

PROFESSOR WILLIAM BRYAN BARTON, JR., *Chairman*
Room 319, Clement Hall

Requirement for a collateral area in Graduate School:

In the Department of Philosophy, 9 semester hours as approved by the adviser.

6011. Theory of Knowledge. (3).

A critical study of the basic problems of epistemology, with readings in the important philosophers. PREREQUISITE: Two semester courses in philosophy or the permission of the instructor. Offered alternate years.

6021. Metaphysics. (3).

An analysis of the basic metaphysical concepts and a critical study of old and new theories of the nature of being. PREREQUISITE: Two semester courses in philosophy or the permission of the instructor. Offered alternate years.

6031. Hegel. (3).

The philosophy of Logic, Nature, and Spirit will be delineated together with a detailed investigation of *The Phenomenology of Mind*. PREREQUISITE: Two courses in philosophy or permission of the instructor.

6301. Classical American Philosophy. (3).

The development of philosophical ideas in America from the Puritans until 1900, and their relationship to the growth of social, political, and scientific thought. PREREQUISITE: One course in philosophy or a major in American history or English literature.

6302. Recent American Philosophy. (3).

The development of philosophy in America from 1900 to the present. Particular emphasis will be given to pragmatism, realism, naturalism, and analytic philosophy. PREREQUISITE: Two courses in philosophy.

6371. Philosophy of the Nineteenth Century. (3).

Extensive readings in representative 19th century philosophers from Fichte to Nietzsche. Special attention will be given to such movements as dialectical materialism, existentialism, positivism, Darwinism, neo-Kantianism and English idealism. PREREQUISITE: Two courses in philosophy.

6421. Philosophy of Mind. (3).

A critical evaluation and study of contemporary resolutions of the mind-body problem. Account will be taken of modern theories of perception, intentionality, affective and cognitive states, and related issues from the fields of learning theory, phenomenology and depth psychology. PREREQUISITE: Two courses in philosophy.

6431. Recent Problems in the Philosophy of Language. (3).

A study is made of the basic characteristics of scientific language; the problems of meaning and existence are given close attention. PREREQUISITE: At least two courses in philosophy or permission of the instructor.

- 6441. Phenomenology and Its Historical Background. (3).**
A reading and discussion of basic texts in translation of Husserl's *Ideas, Cartesian Meditations* and from the *Crisis of European Science and Phenomenology*. PREREQUISITE: Two courses in philosophy.
- 6632. Advanced Logic. (3).**
The nature of axiomatic systems, techniques of formalization, and the logical foundations of mathematics. PREREQUISITE: Philosophy 2622, or permission of the instructor.
- 7041. Marxism and Democracy. (3).**
The development of Hegel's political and social philosophy by the "Hegelians of the left," the communisms and social democrats; liberal responses to the socialist political theory. PREREQUISITE: Philosophy 6031.
- 7042. Modern Ontologies. (3).**
A critical analysis of some of the rival cosmological and metaphysical systems of the twentieth century and an investigation of the contemporary conceptions of the nature of metaphysical explanation.
- 7043. Seminar in the History of Modern Philosophy. (3).**
A two semester course in the history of modern philosophy. Each semester an intensive study is made of some major figure such as Hume, Kant, Hegel, Spinoza, etc.
- 7044. Seminar in the History of Modern Philosophy. (3).**
Continuation of 7043. PREREQUISITE: Philosophy 7043.
- 7241. Seminar on the Pre-Socratic Philosophers. (3).**
A study of the development of philosophy from the Ionians to the Sophists with a discussion of the various historical interpretations of the period.
- 7242. Seminar on Plato and Aristotle. (3).**
An intensive reading of Plato's later dialogues and parts of Aristotle's *De Anima, Physics, and Metaphysics*.
- 7531. Problems in Moral Philosophy. (3).**
An analysis of the work of leading contemporary ethical theorists with a discussion of such problems as the naturalistic fallacy, the logic of moral discourse, moral skepticism, the distinction between ethics and metaethics, etc.
- 7641. Axiomatics. (3).**
A study of the nature of deductive systems; modern postulation methods; classes; properties of relations; proofs of consistency; completeness and independence.
- 7671. Philosophy of Science. (3).**
Lectures, organized discussions and reports, centering around contemporary problems of analysis of scientific methods, arguments, terms, and their social and philosophical consequences.
- 7721. Aesthetics. (3).**
A study of the fundamental issues in aesthetics through an examination of the important classical and contemporary theories of art.
- 7731. Modern Philosophies of Religion. (3).**
A critical evaluation of some contemporary philosophies of religion,

with a view to explicating the idea of a philosophical theology and its relation to such problems as the nature of religious language, religion and science, reason and revelation.

7994. Reading and Research. (3, 3).

Individual supervision under a member of the graduate faculty on a topic within the student's major field of interest.

PHYSICS

PROFESSOR CARROLL IJAMS, *Chairman*
Room 121, Manning Hall

Students majoring in Physics for the Master of Science Degree are required to present as a prerequisite 32 semester hours of undergraduate Physics courses including upper division Mechanics, Electricity and Magnetism, and approved Mathematics courses in Calculus and Differential Equations.

After meeting the general degree requirements for admission to The Graduate School, students selecting Physics as a major subject will consult with the Department Chairman and be assigned to a graduate advisor to direct his courses of study.

With permission of the graduate advisor, the student may pursue either a course of study in which a thesis is required or the alternate non-thesis program may be selected. In either choice of study, an oral comprehensive examination must be satisfactorily completed before being recommended for graduation.

If the thesis course of study is selected, the following minimum requirements must be satisfied.

1. 18 semester hours of Physics courses numbered 7000 or above, including 6 hours of thesis.
2. Sufficient additional courses to satisfy a minimum of 30 semester hours of work in which 9 may be in a collateral field of study.

If the non-thesis alternate program is selected, the following requirements must be satisfied.

1. 33 semester hours of course work, of which 21 hours must be in Physics courses numbered 7000 or above.
2. 9 semester hours may be selected from a collateral field.

6051. Astrophysics. (3).

Application of radiation laws to the interpretation of stellar structure. Introduction to radiative transfer in atmospheres. The spectral and luminosity classifications of stars, stellar populations and evolution. PREREQUISITE: Physics 3010; Physics 1812 or permission of instructor. Mathematics 3391 is a recommended corerequisite.

Three lecture hours and occasional observation periods per week.

6052. Astrophysics. (3).

A continuation of Physics 6051, with emphasis on interstellar matter, stellar systems, galactic structure radio astronomy. PREREQUISITE: Physics 6051.

Three lecture hours and occasional observation periods per week.

6111. Atomic and Nuclear Physics. (4).

A study of atomic structure and behavior, the interaction of atomic particles, nuclear structure, and subatomic particles, radiation and its properties and origin, with some consideration of applications of recent developments in physics. PREREQUISITE: Physics 3010 and 3212, Mathematics 2322 or equivalent.

Three lecture, three laboratory hours per week.

6112. Atomic and Nuclear Physics. (4).

A continuation of Physics 6111. PREREQUISITE: Physics 6111.

Three lecture, three laboratory hours per week.

6211. Optics. (4).

Geometrical and physical optics including such topics as thin lenses, spherical mirrors, lens aberrations, optical instruments, waves interference, diffraction, absorption, transmission, and scatterings. PREREQUISITE: Physics 3212; Mathematics 2322.

Three lecture, three laboratory hours per week.

6212. Optics. (4).

A continuation of Physics 6211. PREREQUISITE: Physics 6211.

Three lecture, three laboratory hours per week.

6310. Radiosotope Technology. (3).

Properties and detection of radiation, production of isotopes, use of detection devices, radiation chemistry, thickness and density gauging, activation analysis, moisture measurement, safety procedures, analytical tracer techniques, industrial radiography, procurement of radioisotopes and radioisotope licenses, and design of radiochemical laboratories. Not applicable to a major in physics. PREREQUISITE: Approval of staff.

Two lecture, two laboratory hours per week.

6410. Introduction to Quantum Theory. (3).

Experimental basis of quantum theory; development of the Schrodinger equation and its solution of simple systems; selected applications in atomic and molecular structure. PREREQUISITE: Physics 3010, 3112, 3212, COREQUISITE: Mathematics 4392.

Three lecture hours per week.

6510. Thermodynamics. (3).

A mathematical treatment of thermodynamics, including such topics as work, energy, enthalpy, entropy, reversible and irreversible processes, equilibria, specific heats, and phase transitions. RECOMMENDED COREQUISITE: Physics 3112 or 3212.

Three lecture hours per week.

6520. Statistical Mechanics. (3).

Elements of kinetic theory and applications to gases, specific heats, magnetism, etc. Partition functions; introduction to Boltzmann statistics and quantum statistics. PREREQUISITE: Physics 6510.

Three lecture hours per week.

6610. Solid State Physics. (3).

Consideration of such topics as lattice vibrations, specific heats, electrical and thermal conductors in solids, magnetism. PREREQUISITE: Physics 3112 and 3212.

Three lecture hours per week.

6710. Optical Spectroscopy. (3).

Atomic and molecular structure as revealed by the study of radiation emitted and absorbed by substances. Emphasis is on the vector model of the atom and an introduction to infrared and Raman spectra of molecules. PREREQUISITE: Physics 4111 or 4410.

6911. Introduction to Theoretical Physics. (3).

Special mathematical techniques used in the theoretical treatment of physical phenomena, boundary value problems, matrices, Fourier series and integrals, etc. as applied to advanced physical theory. PREREQUISITE: Approval of instructor; Physics 3112, 3212 or 4391.

6912. Introduction to Theoretical Physics. (3).

A continuation of Physics 6911. PREREQUISITE: Physics 6911.

7010. General Physics for High School Teachers. (3).

The course will consist of three one-hour and one two-hour laboratory per week. It is a course designed to cover the basic and fundamental concepts of mechanics, heat, sound, light, electricity and magnetism, atomic and nuclear physics. These topics will be covered by lecture, demonstrations, and actual laboratory experiments. Daily problem assignments, as well as weekly laboratory reports and outside readings, will be required for each participant. Selected topics will be adequately covered and emphasized. Credit for this course does not apply toward a major or minor in chemistry or physics.

7020. Fundamental Concepts of Contemporary Physics for High School Teachers. (3).

The course will consist of three one-hour lectures and one two-hour laboratory session per week. The course material will include many of the newer topics emphasized in the modern high school texts actually in use today. Electronics, the newer phases and concepts of electricity and magnetism, x-rays, radioactivity, and, the basic principles of atomic and nuclear physics will be covered. The principle objective of the course will be to strengthen the background of those teachers now in the field of atomic and nuclear physics. Credit for this course does not apply toward a major or minor in chemistry or physics.

7030. Selected Topics in Modern Physics for High School Teachers. (3).

Some of the more advanced topics of atomic and nuclear physics, together with the basic concepts of solid state physics, electronics, and space technology will be presented. Laboratory experience with some of the more advanced electronic and nuclear equipment will be provided. PREREQUISITE: Physics 7010.

Three lecture hours per week.

7040. Mathematical Physics. (3).

A survey of mathematical methods employed in advanced physics on the graduate level. Fourier analysis, complex variables, special function, Eigenvalues, tensor analysis, Green's functions and similar topics will be included, with emphasis upon their application to both theoretical and experimental physics courses. PREREQUISITE: Mathematics 4392 or approval of staff.

7041. Mathematical Physics. (3).

A continuation of Physics 7040.

7050. Special Topic in Physics. (3).

A course designed to include selected topics of interest and impor-

tance in advanced Physics. Individual investigation and reports under the guidance of the major adviser will constitute a major part of the course. Extensive use of the technical library facilities of the area and of current literature will be required. PREREQUISITE: Approval of staff.

7610. Advanced Topics in Solid State Physics. (3).

Introduction to the quantum theory of solids. Band theory, magnetism, superconductivity, lattice dynamics, and other advanced topics. PREREQUISITE: Physics 6410 and 6610 or equivalent.

7710. Advanced Topics in Optical Spectroscopy. (3).

Advanced topics in atomic and molecular spectroscopy, including the interaction of optical radiation with matter, the transition probabilities, hyperfine structure, applications of group theory to spectroscopic problems. PREREQUISITE: Physics 4710 and 4410.

7913. Physics Seminar. (1).

General meetings for presentation and discussion of recent topics of interest. Graduate students and faculty participate. PREREQUISITE: Approval of staff.

7923. Physics Seminar. (1).

General meetings for presentation and discussion of recent topics of interest. Graduate Students and faculty participate. PREREQUISITE: Approval of staff; Physics 7913.

7933. Physics Seminar. (1).

General meetings for presentation and discussion of recent topics of interest. Graduate students and faculty participate. PREREQUISITE: Approval of staff; Physics 7923.

7996. Thesis. (6).

The original investigation of an assigned problem in the area of graduate study to be carried out under the supervision of a qualified member of the staff. This investigation will furnish the material for a thesis. Scientific articles, progress reports, and special problems of interest are reviewed and discussed by the student in seminars each semester. A maximum of six semester hours credit is allowed toward a master's degree. PREREQUISITE: Approval of the staff.

POLITICAL SCIENCE

ASSOCIATE PROFESSOR H. R. MAHOOD, *Acting Chairman*
Room 419, Clement Hall

In the Department of Political Science, graduate students who select Political Science as a major will consult their major adviser as to the program of study. The basic requirements are as follows:

Prerequisite: a minimum of 18 semester hours, except in special cases approved by the Dean of The Graduate School and the Department of Political Science.

Requirements: (1) a minimum of 21 semester hours in graduate courses, at least 15 of which must be in the 7000 level courses; (2) each student must complete a thesis (6 hours); (3) graduate Political Science majors must pass an oral comprehensive examination in the major and collateral fields before being recommended for graduation; and (4) each student must pass a read-

ing knowledge examination of an approved foreign language or show, in approved cases, a working knowledge of statistics.

For the collateral area, 9 semester hours as approved by the adviser, are required.

6211. The Constitution: Governmental Structure and Relationships. (3).

An analysis of the relationships and controls of the three branches and the nature of the division of power between the nation and the states, with emphasis on the role of the Supreme Court as the arbiter in the constitutional system.

6212. The Constitution: Political and Civil Rights. (3).

An examination of the judicial interpretation of the political and civil rights with emphasis on the period since 1875.

6213. Development of United States Domestic Policy. (3).

A study of the formation and execution of selected domestic policies (fiscal, economic, agriculture and conservation, welfare, grants-in-aid) with a detailed examination of the political and administrative environment of governmental decision making.

6214. The Executive Process. (3).

A detailed study of the role of the executive in American politics.

6215. The Judicial Process. (3).

An examination of the structure of the legal system and the role of the judiciary in government and politics. Emphasis is on the American legal system and the factors which enter into judicial decision-making including political, social, economic, and psychological factors.

6224. Municipal Problems. (3).

A study of selected problems in municipal administration (organization, personnel, fiscal, planning).

6301. British Government and Politics. (3).

The nature and development of the British Constitutional system. Special emphasis will be placed on the Cabinet, Parliament, and the Commonwealth organization and function.

6305. Soviet Government and Politics. (3).

Organization and function of the authoritarian state, with emphasis on the role of the Communist Party and ideology.

6306. Contemporary Latin American Politics. (3).

A study of contemporary problems in Latin American politics and inter-American relations.

6401. Modern Political Ideologies. (3).

A study of authoritarianism and democracy as represented by a comparison of democracy, socialism, communism, and fascism.

6405. American Political Thought. (3).

An analysis of political thought in the United States from the colonial to the present time, with emphasis placed on the relation between political thought and political institutions and practices.

6501. Contemporary Problems in International Politics. (3).

A study of contemporary problems in international relations with emphasis on the major powers.

6502. **Soviet Foreign Policy. (3).**
Basic concepts about Soviet foreign policy; development and techniques; present patterns of Soviet relations with key nations; major problems in future relationships.
6504. **International Law. (3).**
An analysis of the nature, scope, duties, rights, and evolutionary trends of international law.
6505. **World Communist Movement. (3).**
A study of the development of the World Communist Movement from its inception to the present: its Leninist origins; the Bolshevization and Stalinization of the movement; the rise of other national communist parties; the Sino-Soviet conflict and "polycentrism."
6506. **Problems in American Foreign Policy. (3).**
A study of American foreign policy problems taken from specific areas or issues of policy.
6601. **Policy and Administration. (3).**
A study of the role of the administrator in the formulation of public policy; an examination of the processes, problems, and effects of executive influence in legislation and adjudication.
6604. **Problems of Public Administration. (3).**
An examination of the administrative processes, including an investigation of laws, the powers, procedures, and the limitations upon administrative offices and agencies.
7106. **The Political System. (3).**
A systematic analysis of the elements of the political system, showing the interrelationship of political culture (values, beliefs, attitudes, consensus), the formal and informal patterns of power, the patterns of interest, and the pattern of policy.
7201. **Seminar in U. S. Political Institutions and Thought. (3).**
A study of the development of major political institutions and thought.
7212. **Seminar in Constitutional Problems. (3).**
7213. **Seminar in Judicial Decision-Making. (3).**
An analysis of recent research in judicial decision-making, including the application of statistical techniques.
7216. **Seminar in Political Behavior. (3).**
Genesis of political parties and pressure groups as political institutions. Study of political dynamics including the role and function of parties and pressure groups in the legislative, executive, and electoral processes.
7224. **Seminar in Metropolitan Problems. (3).**
A consideration of the problems inherent in the growing urban developments in the United States. The governmental organization of metropolitan areas and the difficulties of coordination of government functions. Proposed remedies and the reception of new approaches in selected metropolitan areas.
7225. **Seminar in Problems in State Government. (3).**
Selected policy making processes and policy problems arising from the operation of legislative, administrative, and judicial machinery. Special attention will be given to Tennessee.

- 7301. Seminar in Comparative Political Institutions and Thought. (3).**
Comparative study of the development of political institutions and thought in major world government.
- 7302. Seminar in Comparative Politics. (3).**
Study of selected problems in comparative politics.
- 7401. Seminar in Political Theory. (3).**
Study of selected topics involving the development of political thought.
- 7501. Seminar in International Politics. (3).**
A study of selected problems in international politics.
- 7605. Seminar in Politics and Administration. (3).**
Explanation of problems stemming from the relationships of politics and administration, stressing relevant analytical approaches and research methods.
- 7996. Thesis. (3-6).**
The student must write and defend satisfactorily a thesis on a subject approved by his major professor.

PSYCHOLOGY

PROFESSOR ROBERT VIDULICH, *Chairman*
Room 211, Johnson Hall

In the department of Psychology, permission to pursue a Master's degree is granted on a competitive basis. In order to be considered for master's work, the applicant should meet the following prerequisites:

1. An overall undergraduate grade-point average of at least 2.5 (out of 4.0). Applicants with undergraduate records at this minimum level are not ordinarily admitted. Strong supporting guidance will be required of such applicants.
2. A minimum of 18 semester hours in undergraduate psychology courses, including Quantitative Methods, Learning and Behavior Modification, and Experimental Psychology. A student lacking these prerequisite courses but presenting an exceptional undergraduate record may be granted graduate admission and should remove the deficiencies as early as possible. In other cases, an applicant may be admitted as a special student, his application for graduate status being deferred until the deficiencies are removed.
3. Satisfactory performance on the aptitude section of the Graduate Record Examination.
4. Letters of recommendation from at least two persons familiar with the applicant's background and aptitude for graduate work.

In the Department of Psychology, permission to pursue the Ph.D. degree is also selectively granted on a competitive basis. In order to be considered for advanced graduate work in the Ph.D. program, the applicant must meet the following requirements:

1. Have satisfactorily completed all requirements for the Master of Science degree in Psychology at Memphis State University, or hold an equivalent master's degree from another institution. No applicant will be considered for the Ph.D. program who holds a non-thesis degree until he has completed, at Memphis State University, the additional

requirements of this Department for the M.S. degree. Outstanding prior work in graduate studies will be expected of all applicants.

2. Satisfactory performance on the aptitude section, and on the Psychology advanced test, of the Graduate Record Examination.
3. Letters of recommendation from at least three persons familiar with the applicant's academic background and aptitude for advanced graduate work.

The student granted graduate status should consult his graduate faculty advisory committee to determine his program of study. The student may work toward the M.A. Degree or the M.S. Degree in Psychology or the M.A. Degree in School Psychology, the choice of degree programs depending on the student's interests and goals. The student pursuing the M.A. or M.S. Degree in Psychology is urged to complete all his work for the degree in the Department of Psychology, though under special circumstances he may take a collateral in an area approved by his advisory committee.

7101. History and Systems of Psychology. (3).

An analysis of the philosophical and scientific antecedents of contemporary psychology, including examination of historically and currently important theoretical systems and discussion of problems of conceptualization and theory construction. PREREQUISITES: Psychology 4101 or equivalent, or consent of instructor.

7102. Physiological Psychology. (4).

A comprehensive study of the relationships between physiological processes and behavior. The anatomy and physiology of the nervous system will be reviewed. Major emphasis is on various functional systems such as attention, activation, regulation, and on the topics of learning and memory. PREREQUISITES: Psychology 4201 or equivalent, or consent of instructor.

Three lecture, two laboratory hours per week.

7103. Comparative Psychology. (4).

A comprehensive examination and synthesis of the principles, concepts, and findings of ethology and comparative psychology. Similarities and differences in theories, methods, and research findings related to such basic psychological problems as the effective stimulus, the drive concept, and acquired vs. innate behaviors will be examined. PREREQUISITES: Psychology 4202 or equivalent, or consent of instructor.

Three lecture, two laboratory hours per week.

7104. Psychological Appraisal. (3).

A survey of the empirical foundations of psychological assessment. Research on the interpretation and evaluation of a variety of measurement devices will be reviewed. The role of assessment in the modification of behavior will be discussed. PREREQUISITES: Psychology 3304 or equivalent, or consent of instructor.

7201. Theories of Learning. (3).

Examination and discussion of the major contemporary theories of learning. Attention is given to the basic assumptions, logical structure, and empirical support for the theories of Spence, Skinner, Estes, and Logan. In addition, briefer consideration is given to theories of considerable historical importance such as those of Guthrie, Tolman, and Hull. PREREQUISITES: Psychology 3201 or equivalent, or consent of instructor.

7202. Theories of Personality. (3).

A survey of major contemporary theories of personality, with particular emphasis on the etiology and treatment of psychopathological states as interpreted within various theoretical frameworks. PREREQUISITES: Psychology 3101 or equivalent, or consent of instructor.

7205. Social Psychology. (4).

A survey of the theoretical and research literature pertaining to current topics in social psychology: group dynamics, social influence and conformity, interpersonal perception, and attitude formation and change, with consideration of research techniques used in social psychology. PREREQUISITES: Psychology 3302 or equivalent, or consent of instructor.

Three lecture, two laboratory hours per week.

7207. Developmental Psychology. (3).

A detailed examination of developmental processes across species. Primary emphasis is placed on the variables contributing to normal development of species-characteristic abilities and patterns of behavior. PREREQUISITE: Psychology 3103 or equivalent, or consent of instructor.

7208. Psychology of Perception. (4).

An examination of the historical development, research, and major theoretical positions in the area of perceptual psychology. Major emphasis is placed on theoretical and experimental treatment of the basic perceptual phenomena. PREREQUISITE: Psychology 4203 or equivalent, or consent of instructor.

Three lecture, two laboratory hours per week.

7209. Sensory Psychology. (4).

A structural and functional examination of the basic sensory systems. The problems of sensory quality and sensory quantity will be investigated with major emphasis on visual acuity, color vision, pitch discrimination, and haptic sensitivity. PREREQUISITE: Psychology 4203 or equivalent, or consent of instructor.

Three lecture, two laboratory hours per week.

7210. Psychology of Learning. (4).

Examination and discussion of current research, and of theoretical and experimental problems in the area of learning and behavior modification. Topics covered include reinforcement, punishment, secondary reinforcement, extinction, motivation, generalization, discrimination, retention, and forgetting. PREREQUISITE: Psychology 7201, or consent of instructor.

Three lecture, two laboratory hours per week.

7301. Quantitative Methods. (4).

Statistical inference applied to problems in psychological experimentation. Elementary probability, statistical distributions, classical and nonparametric statistics will be covered. PREREQUISITES: Psychology 2301 or equivalent, or consent of instructor.

Four lecture hours per week.

7302. Research Design and Methodology. (4).

The emphasis will be on mathematical and nonmathematical analyses of psychological data, theoretical and experimental implications of different analyses, various data collection techniques, and types of

experimental and statistical control. PREREQUISITES: Psychology 7301, or consent of instructor.

Four lecture hours per week.

7303. Multivariate Analysis. (3).

Partial and multiple correlation, factor analysis, cluster analysis. Practice in applying these techniques, with emphasis on the logic of such statistical techniques for psychology. PREREQUISITES: Psychology 7301, or consent of instructor.

7304. Measurement Theory and Psychometrics. (3).

Measurement theory involved in the construction and evaluation of psychological measuring instruments will be stressed. Particular emphasis will be placed on scaling methods and their use in psychological research and evaluation. PREREQUISITES: Psychology 7301, or consent of instructor.

7305. Behavioral Instrumentation. (3).

Detailed examination of instrumentation techniques in behavioral psychology including specific study of basic electronics appropriate to psychological equipment circuit construction, programming, and stimulus presentation techniques, and to the design and construction of behavioral research equipment. PREREQUISITE: Consent of instructor.

Two lecture, two laboratory hours per week.

7309. Physiological Techniques. (3).

Detailed examination of various techniques used in research in physiological psychology, covering such topics as surgical and histological procedures, cortical lesions and implants, perfusion, and electrophysiological recording. PREREQUISITE: Psychology 7102, or consent of instructor.

Two lecture, two laboratory hours per week.

7401. Psychotherapy. (3).

An orientation to a particular approach in psychotherapy, intended to provide an initial workable frame of reference for the clinical psychology student prior to beginning clinical practicum work. Lectures and sensitivity training. PREREQUISITES: Psychology 7202 and 7412, or consent of instructor.

7402. Psychodiagnostics I: Intellectual Assessment. (3).

The measurement of intelligence and intellectual deficits. Emphasis on the development and evaluation of, and practice in administering, individual intelligence tests and measures of specific intellectual functions. PREREQUISITES: Psychology 7104, or consent of instructor.

7403. Psychodiagnostics II: Personality Assessment. (3).

An examination of the various psychometric techniques for assessing personality functioning. Objective measures (e.g., MMPI) and projective measures (e.g., Rorschach) will be covered in detail. PREREQUISITES: Psychology 7202 and 7412, or consent of instructor.

7412. Psychopathology. (3).

A survey of the manifestations of abnormal behavior and psychological processes. Detailed analysis of the clinical and experimental literature concerning psychological and psychiatric disorders and their etiology. PREREQUISITES: Psychology 7202, or consent of instructor.

7413. Introduction to Mental Retardation. (3).

A comprehensive introduction to the psychological, genetic, physiological and social aspects of mental subnormality. Consideration of classification systems, syndromes, etiology and prognosis of mental retardation in children and adults. **PREREQUISITES:** Consent of instructor.

7414. Diagnosis and Treatment of Mental Retardation. (3).

Comprehensive study of interdisciplinary approaches to the diagnosis and treatment of the retardate and other patients with handicapping conditions. Special emphasis is given to consideration of the handicapped child as understood by various professional disciplines concerned. **PREREQUISITES:** Psychology 7413, or consent of instructor.

7501. Seminar: General Psychology. (3).

(May be repeated to a maximum of 9 credits). Systematic study of current topics in psychology of a general-theoretical nature.

7502. Seminar: Physiological Psychology. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the field of physiological psychology.

7503. Seminar: Experimental Psychology. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the field of experimental psychology.

7504. Seminar: Comparative Psychology. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the field of comparative psychology.

7505. Seminar: Social Psychology. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the field of social psychology.

7506. Seminar: Clinical Psychology. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the field of clinical psychology.

7507. Seminar: Industrial and Organization Psychology. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the fields of industrial psychology and organizational behavior.

7508. Seminar: Mental Retardation. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the field of mental retardation.

7509. Seminar: School Psychology. (3).

(May be repeated for a maximum of 9 credits). Systematic study of current topics in the field of school psychology.

7601. Research Practicum: General Psychology. (1-3).

(May be repeated for a maximum of 9 credits). Individualized advanced laboratory of field research activities in general psychology.

7602. Research Practicum: Physiological Psychology. (1-3).

(May be repeated for a maximum of 9 credits). Individualized advanced laboratory research activities in physiological psychology.

- 7603. Research Practicum: Experimental Psychology. (1-3).**
(May be repeated for a maximum of 9 credits). Individualized advanced laboratory research activities in experimental psychology.
- 7604. Research Practicum: Comparative Psychology. (1-3).**
(May be repeated for a maximum of 9 credits). Individualized advanced laboratory or field research activities in comparative psychology.
- 7605. Research Practicum: Social Psychology. (1-3).**
(May be repeated for a maximum of 9 credits). Individualized advanced laboratory or field research activities in social psychology.
- 7606. Research Practicum: Clinical Psychology. (1-3).**
(May be repeated for a maximum of 9 credits). Individualized advanced laboratory or field research activities in clinical psychology.
- 7610. Clinical Practicum: Diagnostic Methods. (1-3).**
(May be repeated for a total of 6 credits). The advanced clinical psychology student will receive supervised experience in the use of psychodiagnostic techniques in various community settings. **PREREQUISITES:** Psychology 7402 and 7403, or consent of instructor.
- 7611. Field Practicum: Social-Industrial Psychology. (1-3).**
(May be repeated for a maximum of 9 credits). Seminar discussion and supervised experience in the application of basic psychological procedures and principles to social, personnel, and organizational activities in various industrial, military, and community settings. **PREREQUISITES:** Psychology 7205, or consent of instructor.
- 7612. Clinical Practicum: Psychological Treatment. (1-3).**
(May be repeated for a total of 6 credits). The advanced clinical psychology student will receive supervised experience in the practice of psychotherapy and behavior modification techniques in various community settings. **PREREQUISITES:** Psychology 7401, or consent of instructor.
- 7613. Clinical Practicum: Mental Retardation. (1-3).**
(May be repeated for a total of 3 credits). Didactic training and supervised experience in the application of psychological assessment and treatment procedures to persons with mental retardation and related disorders. **PREREQUISITES:** Psychology 7413 and 7414, or consent of instructor.
- 7615. Special Problems. (1-3).**
(May be repeated for a total of 6 credits). Independent investigation of a research problem, or directed readings, in a selected area of psychology chosen in consultation with the instructor. **PREREQUISITES:** Consent of instructor.
- 7996. Thesis. (1-3).**
Independent research for Master's degree. Application for writing a thesis must be filled out on an approved form after consultation with major professor and filed with the Dean of The Graduate School.
- 9000. Dissertation. (1-9).**
Independent research for Doctor of Philosophy degree. Application for writing a dissertation must be filled out on an approved form after consultation with the major professor and filed with the Dean of The Graduate School.

SOCIOLOGY AND ANTHROPOLOGY

PROFESSOR CHARLES NEWTON, *Chairman*
Room 124, Clement Hall

In the Department of Sociology, graduate students who select sociology as a major area will consult with the chairman of the Graduate Committee in the department as to their program of study. The following courses are required of *all* majors: Sociology 7110, 7210, 7320, and 7996 (Thesis). Each student majoring in sociology shall be required to pass a reading examination in an approved foreign language or satisfactorily complete an approved computer-statistics course of study. It is the responsibility of each student to obtain copies of "Degree Requirements for Masters of Arts Degree" and "Required Reading List" from the department office for detailed descriptions of requirements.

For the collateral area, 9 semester hours as approved by the adviser, are required.

6211. Modern Sociological Theories. (3).

European contributions, American developments, recent trends and influences in sociological theory.

6222. History of Social Thought. (3).

Emphasis on the historic sources of social ideas in Western culture in terms of their relevance to contemporary systematic theory.

6412. Urban Research. (3).

Extensive exploration of research methods that have proved useful in the study of urban social phenomena; the application, limitations, and advantages of various research approaches. PREREQUISITE: Sociology 2410 or permission of instructor.

6413. Urban Theory Seminar. (3).

A seminar course in sociological theories of urbanism and urbanization. Analysis of both historical and contemporary theories.

6522. Analysis of Juvenile Delinquency. (3).

Trends of juvenile delinquency; the development of case study techniques and diagnosis of juvenile delinquency; comparative analysis of various theoretical approaches.

6523. Techniques of Criminal Investigation. (3).

A description, analysis, and demonstration of historical and contemporary techniques and procedures utilized in the apprehension of the criminal.

6524. Penology. (3).

The historical and contemporary analysis of penal systems and reformatories in terms of organization; procedures, programs, and effectiveness.

6525. Probation and Parole. (3).

The analysis of various release procedures and their effectiveness from an historical, philosophical, and sociological point of view.

6610. Population. (3).

Population theories and policies; their definition and history. Trends in population growth; methods of population analysis, and trends in

fertility and mortality. Emphasis on fertility, mortality, sex and age composition, and migration and their influences on population change.

6620. Human Ecology. (3).

Spatial structure and land use patterns of urban, rural, and fringe areas; city growth, its spatial and communicative extension into suburban and rural areas, and its impact on the economy, values and social organization of communities.

6720. Collective Behavior. (3).

Emergence of collective behavior, spontaneous collectivities, social movements, social consequences of restrictive collective behavior.

6830. Directed Individual Study. (1-4).

Individually directed advanced reading and/or research in special areas of interest. **PREREQUISITE:** permission from departmental chairman.

6842. Occupations and Professions. (3).

Sociological analysis of the division of labor, occupational groupings, career patterns, and professional associations in modern American society.

6851. Medical Sociology. (3).

The contributions of sociology to medicine; the sociology of illness, particularly mental illness; practitioners, patients and medical settings, particularly the modern hospital; the organization and the sociology of the distribution of medical care; the status and the methods of research in medical sociology.

7010. Seminar in the Sociology of Deviant Behavior. (3).

A seminar in the sociological approaches to the study of deviance and social disorganization with an emphasis on current sociological theory and research. **PREREQUISITE:** Graduate standing, Sociology 7110 (Pro-seminar) or equivalent and consent of instructor.

7110. Proseminar. (3).

Review and integration of major propositions, concepts, and methods from the various fields of sociology in their current state.

7210. Theory Seminar. (3).

An advanced analysis of recent developments in sociological theory, including the relationship of theory to empirical research.

7230. Systems Theory Seminar. (3).

The advanced analysis of specialized sociological systems as developed by American and European sociologists.

7320. Seminar in Methods of Social Research. (3).

A seminar dealing with: (1) advanced statistical methods, including experimental design, the analysis of stochastic processes, and similar procedures; and (2) the general methodology of social research, including such topics as the location of research problems, the structure of arguments, the nature of evidence, and the more general logic of social research.

7413. Urban Theory Seminar. (3).

A seminar in sociological theories of urbanism and urbanization. Analysis of both historical and contemporary theories. **PREREQUISITE:** Graduate standing, and consent of instructor.

7420. Readings in Contemporary Family Life. (3).

An advanced course in the study of the family which is primarily concerned with research findings in the areas of family disorganization, changes in family structure and function, parent-child interaction, working mothers, and problems of aging.

7440. Social Stratification. (3).

This course will examine the theories of Marx, Weber, Warner, Parsons, and Bendix among others. Furthermore, this course will encompass the study of the relationship between class, prestige, life-style and ideology in a cross cultural perspective. Finally, it will also examine the factors relating to the increase and decrease rates of social mobility.

7460. Formal Organizations. (3).

The relationship between organizational structure, ideology, and interaction patterns.

7610. Techniques of Population Analysis. (3).

An analysis of the sources of population data and the techniques for utilizing these data in population research and in other forms of social research in which population data are a meaningful part.

7810. Racial and Cultural Minorities. (3).

A study of the empirical and conceptual aspects of minority status as determined by racial and cultural criteria.

7880. Sociology of Knowledge. (3).

Systems of thought, including metaphysical theories and social and political philosophies are studied from the standpoint of their causal interdependence with social structures and processes. **PREREQUISITE:** Graduate standing, and consent of instructor.

7996. Thesis. (3-6).

Supervised research in preparation for advanced degree thesis. **PREREQUISITE:** The formal filing of a research proposal and outline of procedures acceptable to the student's graduate committee.

ANTHROPOLOGY

6065. History of Anthropological Theory. (3).

The growth of theory and method in anthropology leading to modern historical, sociological, and psychological interpretations. **PREREQUISITE:** Permission of instructor.

6251. Social Structures of Non-Literate Societies. (3).

Comparative analysis of social structures and their functional relationships to other cultural institutions, with emphasis on family types, marriage patterns, and kinship. **PREREQUISITE:** Anthropology 1200 and at least one survey or area course in ethnology; or permission of instructor.

6252. Economic Systems of Non-Literate Societies. (3).

Comparative analysis of economic systems and their functional relationships to other cultural institutions; production, distribution, and consumption in non-literate groups; concepts of wealth, value, property, and ownership. **PREREQUISITE:** Anthropology 1200 and at least one survey or area course in ethnology; or permission of instructor.

6254. Culture Change in Non-Literate Society. (3).

Internal and external factors causing change in the small-scale society; theories of cultural evolution; social changes involved in the emergence of civilization; changes involved in industrialization.

6751. Culture and Personality in Non-Literate Society. (3).

Comparison of factors involved in the analysis of personality as contrasted to culture; the interaction of these factors; problems of studying personality cross-culturally.

6752. Applied Anthropology. (3).

Applications of anthropological knowledge and techniques to contemporary problems in government, industry, public health, and colonial and native administration. Emphasis on, but not limited to, contacts between industrial and non-industrial societies. PREREQUISITE: 12 semester hours of anthropology and permission of the instructor.

7331. Seminar in New World Archaeology. (3).

Intensive studies of selective cultural topics, utilizing data derived from prehistoric sites in North and South America. PREREQUISITE: Graduate standing.

SPEECH AND DRAMA

PROFESSOR HARRY AUSPRICH, *Chairman*

Room 143, Speech and Drama Building

The graduate major in Speech and Drama may specialize in Audiology and Pathology, Radio and Television, Rhetoric and Public Address, Speech Education, or Theatre and Oral Interpretation, depending on his undergraduate background and experience. Students who choose to major in Speech and Drama will consult their major adviser as to the program of study. The student may request a non-thesis degree program through his adviser to the departmental graduate committee. Each student's program must include Speech 7100, Bibliography and Methods of Research (3).

For the collateral area, 9 semester hours as approved by the adviser, are required.

6101. Contemporary Theories of Language. (3).

An examination of the influence of language upon behavior, of the limitations of language as a communicative system, and of the relationships between language and thought.

6361. History and Criticism of British Public Address. (3).

A study and analysis of British speakers and speaking from the 16th century to the present time. Emphasis will be placed on the speech situation, audience, issues and speakers. Such men as Fox, Pitt, Sheridan, Burke, Disraeli, and Churchill will be considered.

6362. History and Criticism of American Public Address. (3).

An analysis of political, religious and social speaking from colonial times to the present. Such men as Clay, Emerson, Lincoln, Webster, and the Roosevelts will be considered.

6365. The Tradition of Southern Oratory. (3).

Studies of notable speakers of the South, the rhetorical characteristics of political campaigns and movements, and the impact of different forms of speech-making upon the Southern social structure.

- 6371. Critical Analysis of Oral Communication. (3).**
Problems in the theory and criticism of classical and modern rhetoric works; application of the principles of rhetoric to the critical evaluation of current public speaking practice.
- 6421. Interpretation of Poetry. (3).**
Studies in the style and structure of poetry of specific types and periods, as related to the response and performance of the oral interpreter. PREREQUISITE: Speech 2411.
- 6431. Interpretation of Prose. (3).**
Studies in the oral interpretation of prose fiction, with attention to various literary styles and structures. PREREQUISITE: Speech 2411.
- 6451. Interpretation of Shakespeare. (3).**
Studies in the oral presentation of scenes from selected comedies, histories, and tragedies, with exploration of character and dramatic structure.
- 6551. Studies in Theatre History. (3).**
Special problems in theatre history: the men and ideas which have shaped the theatre of the western world from antiquity to the present.
- 6571. Playwriting. (3).**
A study of the theory and principles of writing plays for the stage. Practice in writing either the short or long play.
- 6581. Dramatic Theory and Criticism. (3).**
The major documents in dramatic theory and criticism from Aristotle to the present.
- 6601. Clinical Speech and Hearing Practicum. (3).**
One hundred hours of supervised experience in evaluating and conducting therapy with children and adults who have communicative handicaps. This work is done in the Memphis Speech and Hearing Center and in other rehabilitation agencies, schools, and hospitals. PREREQUISITE: Permission of the instructor.
- 6602. Clinical Speech and Hearing Practicum. (3).**
A continuation of Speech 6601.
- 6631. Audiometric Instrumentation. (3).**
A detailed study of the special problems of audiometric construction, instrumentation and methods of evaluating equipment. Special attention will be given to the purposes of audiometers, hearing aids, and testing rooms in audiometric instrumentation. PREREQUISITE: Speech 2631.
- 6632. Advanced Audiology. (3).**
A thorough study of clinical tests in audiology which include pre- and post-operative techniques, electrodermal audiometry, electro-encephalographic audiometry, and automatic audiometry. Special attention will also be given to neurologic implications in audiology and to the theory and testing in advanced audiological evaluation. PREREQUISITE: Speech 2631.
- 6671. Speech Pathology. (3).**
Steps involved in the differential diagnosis of speech disorders, establishing etiology, and planning a corrective program. Observation of diagnostic sessions in the Memphis Speech and Hearing Center. The

contributions of surgery, medicine, psychology, and other related disciplines. PREREQUISITES: Speech 2611, 2621, 2631.

6841. Television Production III. (3).

An intensive study of the more advanced techniques of television production and direction. Special emphasis on the dramatic and children's formats with regard to their unique production problems. PREREQUISITE: Speech 3842.

6871. Television Management and Programming. (3).

A study of the principles of broadcast management and programming with special attention to station operation, the role of the producer-director, and the productions of local programs. PREREQUISITE: Speech 2811.

6921. Play Production for Secondary Schools. (3).

A survey of the problems of the play director in high school. The course considers: choosing the play, casting, directing, technical aspects of production; then relates these items to the student, the school, and the community.

6922. Directing the Forensics Program. (3).

Designed for the teacher charged with the responsibility of developing and directing interscholastic or intercollegiate competitive speech programs; the study of the historical background for such programs, organizing techniques, recruiting, tournament direction, and other related concerns.

7100. Bibliography and Methods of Research. (3).

1. The examination of bibliographical aids for the study of rhetoric and public address, speech pathology, theater and oral interpretation, speech education, and radio and television, 2. a survey of the types of research in speech, and 3. the presentation and documentation of scholarly writing.

7103. Experimental Research in Speech. (3).

A survey of the fundamentals of probability and statistics; a study of the experimental research designs commonly found in public address, Radio-TV, Audiology-Pathology, and Theatre; Guided criticism of experimental studies in Speech.

7361. The Greek Tradition in Rhetoric and Oratory. (3).

A study of the varying influences on, and movements within, the progressive development of the Greek tradition in rhetorical theory, practice, criticism, and pedagogy from Homer to the Renaissance.

7362. The Roman Tradition in Rhetoric and Oratory. (3).

Development of the Roman tradition in rhetorical thought and practice from Cicero through the English Renaissance.

7363. Modern Rhetorical Theory: 1700 to the Present. (3).

The study of the development of rhetorical theory in England, France, and America with particular emphasis on contributors and movements in the 18th and 19th centuries.

7451. Seminar in Prosody and Criticism. (3).

Studies in versification and in the major critical approaches to literature from the oral reader's point of view.

- 7461. Studies in Oral Interpretation. (3).**
An extensive examination of the work of a major literary author from the oral reader's perspective.
- 7551. Seminar in Theatre Aesthetics. (3).**
A survey of aesthetic theories affecting the theatre from Classical Greece to the present. Special attention will be given to the study of the inter-relationship of theatre and the other arts. (May be repeated for a maximum of 9 credits.)
- 7552. Seminar in American Theatre I. (3).**
A study of the plays, players and playwrights of the American Theatre from its beginnings to the Civil War.
- 7553. Seminar in American Theatre II. (3).**
A study of the plays, players and playwrights of the American Theatre from the Civil War to the present.
- 7554. Seminar in Directing. (3).**
Specialized study of advanced theories and techniques of directing for the theatre with emphasis on the demands of contemporary theatre architecture. (May be repeated for a maximum of 9 credits.)
- 7555. Seminar in Stage Design. (3).**
Specialized study of advanced theories and techniques of theatre design with particular emphasis on the demands of contemporary theatre architecture. (May be repeated for a maximum of 9 credits.)
- 7556. Theatre Planning and Management. (3).**
A study of the principles of theatre planning and management for educational and regional theatres. (May be repeated for a maximum of 9 credits.)
- 7601. Clinical Speech and Hearing Practicum. (1).**
Supervised experience in evaluating and conducting therapy with children and adults who have communicative handicaps. PREREQUISITE: Bachelor's degree in Speech Pathology or equivalent.
- 7602. Clinical Speech and Hearing Practicum. (1).**
Supervised experience in evaluating and conducting therapy with children and adults who have communicative handicaps. PREREQUISITE: Bachelor's degree in Speech Pathology or equivalent.
- 7611. Seminar in Stuttering. (3).**
A study of the theories, therapies, and diagnostic procedures for the person who has rhythmic disorders in speech.
- 7621. Psychology of Speech. (3).**
Development of the normal speech and causes for deviations in personality—expressed in abnormal speech behavior.
- 7631. Seminar in Pediatric Audiology. (3).**
Methods used in assessing hearing problems in very young children. A study of educational opportunities for the deaf child and responsibility for early referral to proper programs.
- 7632. Teaching Speech to the Deaf. (3).**
Methods of teaching speech to deaf children.

7633. **Language for the Deaf. (3).**
Methods of teaching language to deaf children.
7634. **Auditory Training and Lipreading for the Deaf. (3).**
The use of amplification with deaf children, training the residual hearing, and developing the use of visual cues to aid in aural communication.
7635. **Special Problems in Audiology. (1-3).**
Problems designed for the advanced student in audiology for independent problems.
7636. **Special Problems in Audiology. (1-3).**
Problems designed for the advanced student in audiology for independent problems.
7661. **Management of the Cleft Palate Child. (3).**
A study in the approaches to aiding the child with cleft palate and cleft lip utilizing the team approach (working with the Surgeon, Orthodontist, Prosthodontist, and others in total management of the child with cleft palate).
7662. **Language Development and Disorders. (3).**
A study of the management of language and speech disorders in the child with minimal brain damage.
7663. **Seminar in Aphasia. (3).**
Diagnostic and therapy procedures for aphasic adult.
7691. **Seminar in Voice Disorders. (3).**
Differential diagnosis in voice pathology. Effective remedial methods used for functional voice disorders. Therapy for organic voice problems (vocal nodes, papaloma, etc.). Management of the laryngectomized.
7692. **Special Problems in Speech Pathology. (1-3).**
Problems designed for the advanced student for independent study in Speech Pathology.
7693. **Special Problems in Speech Pathology. (1-3).**
Problems designed for the advanced student for independent study in Speech Pathology.
7881. **Studies in Radio and Television. (3).**
A critical analysis of broadcast media with particular emphasis on radio and television tapes, kines, and films of outstanding artistic merit. Supplementary examination will involve selected readings of critics and social observers of mass media.
7882. **Current Trends in Broadcasting. (3).**
A study of the most critical issues facing the broadcasting industry today. The emphasis will be on the present and future effect of these issues on radio and television programming, management, and regulation.
7883. **Television Documentary. (3).**
Student productions of documentaries in both film and videotape together with studies of the best of commercial and educational programs.

7884. Radio Workshop. (3).

Students would supervise, produce, and direct programs for Radio Production Center for local commercial stations as well as develop a Radio Tape Network. PREREQUISITE: Speech 2881 and 2882 or equivalent.

7885. Television Workshop. (3).

Create and produce programs for WKNO and local commercial stations. PREREQUISITE: Speech 6841 or equivalent.

7886. Film Workshop. (3).

Students will create and produce films. PREREQUISITE: Speech 6841 or equivalent.

7895. Techniques for Television Teachers. (3).

A study of the Techniques involved in producing, teaching, and class-room utilization of instructional lessons, emphasizing the use of visual materials, the teacher's appearance on camera, and methods of lesson preparation, with practical experience in the television studio.

7900. Neurological Aspects Related to the Speech and Hearing Mechanisms. (3).

A simplified study of the anatomy of the nervous system pointing up localization of specific structures and their functions as affecting the vocal and hearing mechanism.

7931. Seminar in Problems in Speech Education. (3).

Special study of selected current problems. Individual studies will be pursued with group analysis and discussion at regular class meetings.

7991. Seminar in Comparative Media. (3).

To demonstrate through intensive analysis what happens to the form and content of a creative work in its various adaptations: novel, condensation, stage, movie, and television. PREREQUISITE: Open to all Speech and Drama majors and English majors.

7993. Special Problems. (1-3).

Individual investigation of special research projects not included in thesis.

7994. Special Problems. (1-3).

(Same As Above)

7995. Production Thesis. (3-6).

Creative performance or production project suitable for public presentation. Project to be determined in consultation with and directed by the student's supervisory committee.

7996. Thesis. (3-6).

The College of Business Administration

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ACCOUNTANCY

PROFESSOR JAMES THOMAS THOMPSON, *Chairman*
Room 103, The College of Business Administrative Building

In the department of Accountancy, graduate students who select Accountancy as a major area will consult the departmental chairman or with the adviser assigned to him as to the program of study; however, Accounting 7110, Accounting Theory I (3), and Accounting 7830, Current Accounting Problems I (3), are required courses in the Accountancy major.

For the collateral area, 9 semester hours as approved by the adviser, are required.

6210. Advanced Accounting I. (3).

Partnerships, consignments, installment sales, insurance, statement of affairs, receiver's accounts, statement of realization and liquidation, annuities, estates and trusts. Fall semester. PREREQUISITE: Acctg. 3120.

6220. Advanced Accounting II. (3).

Agencies, home and branch offices, consolidations, mergers, foreign exchange. Spring semester. PREREQUISITE: Acct. 3120.

6240. Auditing I. (3).

Ethics in accounting practices, auditing standards and procedures, programs of audit of various accounts, construction and indexing of various papers, reports to clients. Fall semester. PREREQUISITE: Acctg. 3120, 3320.

6250. Auditing II. (3).

Application of auditing principles to verification of financial statements, preparation of reports, case studies applicable to specific industries, current trends. A practice audit is carried out. Spring semester. PREREQUISITE: Acctg. 4240.

6450. Accounting Systems. (3).

Problems involved in designing accounting installations for various types of businesses, including the designing of clerical departments and planning of required mechanical devices. Spring semester. PREREQUISITE: Acctg. 3120.

6460. Controllership. (3).

Training in the field of administrative accounting, duties and functions of the controller, organization of the controller's office. Fall semester. PREREQUISITE: Acctg. 3320.

6510. Federal Income Tax I. (3).

Regulations pertaining to income taxation of individuals and partnerships. Fall semesters. PREREQUISITE: Acctg. 3110, or permission of instructor.

6520. Federal Income Tax II. (3).

Laws and regulations for corporations, estates, and fiduciaries. Spring semester. PREREQUISITE: Accounting 4510.

6540. Governmental Accounting. (3).

Accounting theory and practice applicable to federal, state, and local government; and to nonprofit institutions; budgetary control; classifications, control, and use of funds; financial statements and reports. Fall semester. PREREQUISITE: Acct. 3120.

7110. Accounting Theory I. (3).

A study of the broad aspects and objectives of accounting with emphasis on generally accepted accounting principles, modern accounting trends, and contemporary controversial topics, through a study of the current releases of the American Institute of Certified Public Accountants, the American Accounting Association, and other research related to changing accounting concepts.

7120. Accounting Theory II. (3).

A further study of the development of accounting theory and the influence of professional accounting societies and regulatory agencies upon the accounting profession. PREREQUISITE: Accounting 7110.

7240. Advanced Auditing. (3).

Review and refinement of generally accepted auditing standards, procedures and extension of auditing procedures; preparation of audit reports and study of special investigations; study of auditing research bulletins of the American Institute of Certified Public Accountants, and pronouncements of the S. E. C. and other regulatory agencies. PREREQUISITE: Accounting 3240 or 4240 or permission of instructor.

7310. Standard Cost. (3).

Budgets, determination of standards, variances and their functions, cost reports, profit projecting. PREREQUISITE: Acctg. 3320.

7510. Advanced Taxation. (3).

Selected research and study in the taxation of individuals and business organizations by Federal and state governments; preparation of selected state and Federal tax returns including those associated with income, excise, gift, death, sales, and payroll; tax practice and procedures. PREREQUISITE: Accounting 4520 or permission of instructor.

7810. Internship in Accounting. (3).

Graduate students interested in public accounting, after receiving approval of the accounting faculty, are placed in offices of cooperating public accounting firms to receive on-the-job training under the direct supervision of a certified public accountant and the general supervision of the college accounting staff. Credit allowed upon acceptance of report of work done, verified by supervising accountant, and completion of a qualifying examination. Minimum time: 500 hours. Both semesters.

7830. Current Accounting Problems I. (3).

A cross section of problems encountered in CPA examinations, including such items as receiverships, realization and liquidation statements, estates and trusts, cost problems, partnerships, and consolidations. PREREQUISITE: Permission of instructor.

7840. Current Accounting Problems II. (3).

Continuation of study of current accounting problems encountered in CPA examinations; review of business law relating to CPA examinations with emphasis on the Uniform Commercial Code; brief review of accounting theory as it pertains to the CPA examination. PREREQUISITE: Permission of instructor.

7910-7912. Problems in Accounting. (1-3).

Directed independent research projects in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Accounting 6210 or equivalent.

7910. **Public Accounting.**

7911. **Industrial Accounting.**

7912. **Governmental Accounting.**

7996. **Thesis. (3-6).**

Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of the Graduate School.

BUSINESS EDUCATION AND OFFICE MANAGEMENT

(See THE COLLEGE OF EDUCATION)

ECONOMICS AND FINANCE

PROFESSOR FESTUS JUSTIN VISER, *Chairman*

Room 306, The College of Business Administration Building

In the Department of Economics and Finance, qualified graduate students may work toward the M.A. degree and the M.B.A. degree.

- A. Requirements for the M.A. degree are a minimum of 21 semester hours of approved course work in economics and/or finance (24 semester hours if a thesis is written), at least 18 semester hours of which are in courses numbered 7000 or above, with remaining 9-12 semester hours in approved course work, in cognate areas; a comprehensive examination, written or oral, at the discretion of the department, in which proficiency in intermediate level theory and in degree course work will be expected.
 - B. Requirements for the M.B.A. degree major are a minimum of 18 semester hours of approved course work in economics and/or finance, at least 12 semester hours of which are in courses numbered 7000 or above; an approved minor in The College of Business Administration; a comprehensive examination, written or oral, at the discretion of the department, in which proficiency both in intermediate level theory and in degree course work will be expected.
 - C. M.B.A. degree collateral area requirements in economics/finance, where the major is in one of the other College of Business Administration departments, are a minimum of 12 semester hours of approved course work, at least 3 semester hours of which are in a course numbered 7000 or above; a comprehensive examination, written or oral, at the discretion of the department, in which proficiency in intermediate level theory and in degree course work will be expected.
1. *Economic Theory and Its Development.*

6310. **Microeconomic Theory. (3).**

An intermediate level examination of price theory and distribution theory. Stress is placed on the market mechanism as a device for resource allocation, with attention given to the uses of basic microeconomic concepts in the analysis of economic problems and in the formulation of economic policy. Both semesters.

6320. Macroeconomic Theory. (3).

An intermediate level examination of the elements of aggregate theory, with emphasis given to social income accounting and to functional relationships between important aggregate economic variables. Attention is given to forecasting and social policy implications. Both semesters.

6410. Development of Economic Thought. (3).

A critical study of the historical development of economic thought. Attention is focused primarily on the emergence of Classical and Neo-classical thought, the several dissident schools of thought, and twentieth century economic thought. Fall semester.

7310. Advanced Microeconomic Theory. (3).

An advanced, comprehensive consideration of the literature on demand theory, market organization theory, theory of the firm, wage theory, interest theory, profit theory. Emphasis is on the usefulness of the theoretical formulations for analytical, research, and empirical study purposes. Fall semester. PREREQUISITE: Economics 6310 or the equivalent.

7320. Advanced Macroeconomic Theory. (3).

An advanced, comprehensive consideration of the Keynesian and post-Keynesian literature on consumption function theory, liquidity preference interest theory, marginal efficiency of capital theory, multiplier theory, and social model building theory. Emphasis is on the usefulness of aggregate concepts for analytical, research, and empirical study purposes. Spring semester. PREREQUISITE: Economics 6320 or the equivalent.

7410. Seminar in Economic Thought. (3).

Individual studies in economic thought are pursued. The student is required to select one of the more recent economic thought systems—Marxism, Neoclassicism, Institutionalism, Keynesianism, Neo-Keynesianism—for intensive study and critical analysis. Spring semester. PREREQUISITE: Consent of the instructor.

2. Economic Methodology.**6140. Business and Economic Research. (3).**

A study of basic research techniques and their application to business and economic problems. Attention is given to both primary-source and secondary-source study approaches. A critical evaluation of selected sample studies is made. Spring semester.

6360. Econometrics I. (3).

A review of the major quantitative methods, including basic probability concepts, necessary for understanding and using econometric models. An introduction to the basic concepts of econometrics, with more simple models conceptualized and computed as a means of illustrating econometric technique. Fall semester.

6370. Econometrics II. (3).

An examination of the basic theory of the stochastic variable and its relationship to the econometric model. A study of how the simple model can be expanded to become a useful forecasting and analytical device. Spring semester. PREREQUISITE: Economics 6360 or the equivalent.

7120. Seminar in Economic Forecasting. (3).

After a careful examination of the literature of general and regional forecasting, the student is required to prepare a comprehensive specific forecast. This forecast is presented to the group and must be defended before the group. Spring semester. PREREQUISITE: Consent of the instructor.

7420. Seminar in Current Economic Problems. (3).

A general problem area, current in economics, is selected. Individual studies in this area are then pursued with group analysis, discussion, and evaluation at regular meetings. Emphasis is on research technique. Fall semester. PREREQUISITE: Consent of the instructor.

7430. Seminar in Economic Analysis. (3).

An examination of some of the more recently developed techniques of economic analysis—including input—output analysis, linear programming, flow-of-funds analysis, operations research, and econometric analysis. Spring semester. PREREQUISITE: Consent of the instructor.

7911. Problems in Economics. (1-6).

Directed independent reading and research in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Consent of the department chairman.

7996. Thesis. (3-6).

Application for writing a thesis must be filled out on an approved form after consultation with the major professor, and filed with the Dean of The Graduate School.

3. International and Developmental Economics.**6110. Latin American Economic Development. (3).**

A critical examination of the economic organization and of the major problems of representative Latin American countries in the context of growth and development theory. Spring semester.

6340. Comparative Economic Systems. (3).

An analytical study of the theoretical framework underlying major alternative economic systems—capitalism, socialism, communism, fascism—with the U.S., Sweden, the U.K., the U.S.S.R., and Spain used as examples. Attention is also directed to problems and difficulties associated with the integration of systems. Fall semester.

6350. International Economics. (3).

A historical approach to the theory of international trade. Consideration is given to the techniques of control over investment and trade, foreign exchange, balance of payments, and world interdependence. Fall semester.

7350. International Finance. (3).

A study of international capital movements, long term and short term, in terms of shifting trade flows and the changing world conditions that affect them. Attention is directed to the instruments and institutions of international investment as well as to their domestic economic and monetary impact. Spring semester. PREREQUISITE: Economics 6350 or the equivalent.

7510. Theory of Economic Growth and Development. (3).

A consideration of the economic variables involved in economic growth and of the functional relationships that may be of significance, from the point of view both of the underdeveloped economy and of the

mature society. The more important theoretical growth models—Hicks, Harrod, Domar, Duessenberry, Goodwin, Kaldor, Solow—will be carefully analyzed and evaluated. Fall semester.

4. *Investment Economics.*

6710. **Financial Markets.** (3).

A survey of the important capital funds markets and the institutions and characteristics peculiar to them. The sources of the demand for funds in each market, and the complex interrelations among the several markets are carefully analyzed. Both semesters.

7710. **Seminar in Investment Planning.** (3).

A study of the objectives of investment management with the emphasis on investments by individuals rather than by institutions. A study of risks as the principal element involved in making investment decisions; the analysis of particular industries, companies, and securities involved in the selection of portfolio investments. Fall semester. PREREQUISITE: Economics 6710 or the equivalent.

7720. **Seminar in Current Problems in Finance.** (3).

A general problem area, current in finance, is selected. Individual studies in this area are then pursued with group analysis, discussion, and evaluation at the regular meetings. Emphasis is on development of the research technique. Spring semester. PREREQUISITE: Consent of the instructor.

7910. **Problems in Finance.** (1-6).

Directed independent reading and research in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Consent of the department chairman.

5. *Labor Economics.*

6220. **History and Theory of American Labor Movements.** (3).

A study of major events and trends in American labor history from colonial times to the present, and of their relevance to evolving labor-management relationships. An analysis of alternative theories of American trade union development. Fall semester.

7220. **Seminar in Comparative Labor Movements.** (3).

An analysis of the historical, ideological, and institutional background of labor movements representative of West European economies, Soviet bloc economies, and so-called "middle way" economies. Fall semester. PREREQUISITE: Consent of the instructor.

7440. **Seminar in Public Policy and Labor Relations.** (3).

Research and discussion into public policy issues in labor-management relations. Attention is focused particularly on the evaluation and current status of the institutions, agencies, and techniques of government regulation. Spring semester. PREREQUISITE: Consent of the instructor.

6. *Managerial Economics.*

7110. **Managerial Economics.** (3).

A study of the economic rationale underlying key management decisions. Managerial problems are identified and examined in the light of relevant economic concepts, and action is determined on the basis of economic logic. Fall semester. PREREQUISITE: Consent of the instructor.

*7. Monetary and Fiscal Policy.***6120. Business Cycles and Forecasting. (3).**

Cyclical Fluctuations examined from the standpoint of definition, theoretical explanation, measurement and quantitative evaluation, secular change implications, and basic forecasting techniques. Both semesters.

**6610. Central Banking and Monetary Policy. (3).
(Formerly Money and Banking II).**

A critical examination of the history, economic functions, and policies of central banks. Analysis of the role of monetary policy in achieving predetermined objectives, with emphasis on the interrelationships of monetary policy, central banking, and the financial markets. Spring semester.

6720. Public Finance. (3).

The theory and practice of government expenditure, revenue, and debt, and the problems of integrating them into meaningful fiscal policy. Alternative forms of taxation are analyzed, especially from the standpoint of economic effects. Fall semester.

6750. State and Local Finance. (3).

A study of fiscal operations at state and local government levels in the United States. Particular attention is given to state and local government tax structures, with special emphasis on property tax assessment and administration. A consideration of the fiscal relations of intergovernmental units, their expenditure patterns, debt policy, budgeting, and financial administration. Spring semester.

7610. Monetary and Fiscal Policy. (3).

A survey of monetary theory and fiscal theory with particular emphasis given to its policy implications. Recent thinking and writing in these areas is carefully examined and evaluated. Fall semester. **PREREQUISITE:** Economics 6610 or the equivalent.

*8. Public Regulation of Industry.***6130. Government Regulation of Business. (3).**

A critical study of the major forms of industrial organization and the social and managerial implications of each. The several approaches to legal and legislative control: Tax laws, commission regulation, and anti-monopoly legislation are considered in view of the impact of each on industrial operating policy. Both semesters.

*9. Regional and Urban Economics.***6510. Economics of Transportation. (3).**

A study of the development of the American transportation system including waterways, highways, railways, and airways, characteristics of modern transportation services; rates and rate making; public aid and regulation.

7501. Location Theory. (3).

An analysis of general problems of the special structure of the economy, especially in terms of the location of industry, of the transportation network, and of resources utilization. Emphasis on a theoretical framework that will be useful in later studies in regional and urban economics and in international trade theory. Spring semester. **PREREQUISITE:** Consent of the instructor.

7520. Regional and Urban Developmental Economics. (3).

A study of economic growth in the context of the region as the economic unit for development. Basic developmental techniques such as regional social income accounting, regional balance of payments analysis, industry location study, economic base analysis, and regional input-output studies are examined both from the standpoint of procedure and evaluation. Spring semester. PREREQUISITE: Economics 6510 or the equivalent.

MANAGEMENT

ASSOCIATE PROFESSOR JAMES M. TODD, *Chairman*

Room 101, The College of Business Administration Building

In the department of Management, students will consult with the Departmental Chairman or with the adviser assigned to him.

For the collateral area, 9 semester hours as approved by the adviser, are required.

6210. Personnel Administration. (3).

Employer-employee relationships; job analysis; recruitment, selection, training, transfer, promotion, and dismissal of employees; industrial unrest; wage plans and policies; employee health, interest and morale; dealing with unions.

6220. Collective Bargaining. (3).

Labor-management relations from the standpoint of collective bargaining contracts. Emphasis is given to the process of negotiating agreements, including procedures, tactics and subject matter.

6410. Management of Business Enterprise. (3).

Consideration is given to over-all policy formation and practice in the operation of new and going business concerns. Emphasis is placed on problems of nonfinancial management. PREREQUISITE: Management 3410.

6420. Human Relations in Business. (3).

A study of the principles of human relations as applied to business management. PREREQUISITE: Management 3410.

6430. Introduction to Operations Research. (3).

An introductory study of decision-making which concentrates on the model building process within the decision theory framework. Topics of linear programming, waiting line theory, game theory and statistical analysis of business problems will be approached from the manager's point of view with emphasis on problem identification. PREREQUISITE: Management 3711.

6510. Production Management II. (3).

A course devoted to solving typical problems that arise in the planning, layout, control, operation, and administration of a manufacturing enterprise. PREREQUISITE: Management 3510.

6520. Production Control. (3).

A study of the elements of production and their coordination emphasized by visits to industrial plants. Three hours lecture.

6530. Plant Layout. (3).

Study of industrial plants—with emphasis on floor plans and placement of facilities. Three hours lecture. PREREQUISITE: Permission of instructor.

6540. Time and Motion Analysis. (3)

Work simplification, including analysis of jobs and trades, as applied in time and motion. Three hours lecture. PREREQUISITE: Management 6520.

6550. Statistical Quality Control. (3).

A course emphasizing the modern statistical approach to the control of industrial quality. Topics treated include the Shewart Control Chart for Variables and Attributes, Acceptance Sampling, and Introduction to the Design of Industrial Experiments. PREREQUISITE: Management 3711.

6750. Electronic Data Processing and Programming. (3).

A problem oriented course, dealing with the programming of digital computers. FORTRAN will be taught and applied to typical business problems, using the facilities of the Academic Computing Center. PREREQUISITE: Management 3750 and Mathematics 1212 or permission of the instructor.

6760. Application of Computers to Modern Business. (3).

A continuation of Management 6750, applying FORTRAN to more advanced business problems. COBOL will be taught. Emphasis will be given to computer systems design for typical business applications. PREREQUISITE: Management 6750 or permission of the instructor.

7210. Seminar in Industrial Relations. (3).

(formerly Advanced Industrial Relations)

A study of selected problems in labor-management relations. PREREQUISITE: Economics 3210.

7410. Seminar in Business Policy. (3).

(formerly Advanced Management of Business Enterprise)

The development of the Top Management viewpoint, the basic objective being to develop executive abilities and creative thinking. Selected problem areas of modern business will be explored, alternative courses of action appraised, and decision-making ability developed. PREREQUISITE: Management 6610, 6410.

7420. Seminar in Management. (3).

Special study of selected current quantitative problems in this area. For the most part, individual studies will be pursued with group analysis and discussion at regular class meetings. PREREQUISITE: Consent of instructor.

7421. Seminar in Management. (3).

Special study of selected current qualitative problems in this area. For the most part, individual studies will be pursued with group analysis and discussion at regular class meetings. PREREQUISITE: Consent of instructor.

7422. Seminar in Organization Theory. (3).

An examination of the principles and techniques of organization covering managerial functions and processes, types of organization structure and the development of managerial concepts in terms of executive

action. Both the classical and behavioral approaches to organization will be analyzed. PREREQUISITE: Consent of instructor; Management 6410.

7910. Problems in Management. (1-4).

Directed independent research projects in an area selected by the student with approval of the staff member supervising. PREREQUISITE: 6 hrs. of graduate course work in the area selected.

7920. Readings in Management. (3).

A study of selected readings in the field of Management. PREREQUISITE: Management 4410 or 6410 (Student cannot obtain credit in this course and also in Management 7910 without consent of instructor.)

7996. Thesis. (3-6).

Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of The Graduate School.

DIVISION OF
BUSINESS FINANCE, INSURANCE AND REAL ESTATE

6310. Real Estate Law. (3).

This course covers law and legal instruments as applied to real estate. It is designed to serve the needs of property owners and those engaged in the real estate business. PREREQUISITE: Management 3310.

6320. Real Estate Finance. (3).

Examination and analysis of the sources of funds for financing all kinds of real estate transactions made, including FHA and VA types. PREREQUISITE: Management 3310.

6330. Property Management. (3).

The fundamentals of management of real estate are developed. Examination and analysis of problems, duties, and responsibilities of the property manager are covered. PREREQUISITE: Management 6310.

6340. Real Estate Appraisal. (3).

This course covers the fundamentals of appraising residential, commercial and industrial real estate. PREREQUISITE: Management 3310.

6350. Industrial Real Estate. (3).

All phases of industrial real estate practices are covered. These include attractions to industry; financing industrial real estate; appraising industrial real estate; and selecting of industrial sites. PREREQUISITE: Management 3310.

6610. Corporation Finance. (3).

Advanced treatment of financial management with emphasis on small and medium-sized enterprise and the forces underlying determination of policy. Financial problems are considered in connection with re-funding, reorganization, mergers, and consolidation. PREREQUISITE: Management 3410.

6810. Property and Casualty Insurance. (3).

The form and functions of fire, marine, automobile, general liability, and other types of property and casualty insurance with emphasis on

their application to commercial and industrial occupancies. A survey of current underwriting practice. PREREQUISITE: Management 3810.

6820. Life and Health Insurance. (3).

The functions of life and health insurance with emphasis upon the need for insurance and the service of life and health insurance to the American family and community. A study of the mechanics of private and public insurance and annuities. PREREQUISITE: Management 3810.

6830. Insurance Agency Management. (3).

Organization, Management, and operation of insurance sales agencies. Equal emphasis is given to the problems and practices of the company owned and the independent agency. PREREQUISITE: Management 3810.

6840. Advanced Property and Casualty Insurance. (3).

Company and industry functions other than contracts, including rating, rate-making, reserves, auditing, underwriting, reinsurance, claims, production, engineering, and governmental supervision. PREREQUISITE (if and): Management 3810.

7010. Law of Taxation of Estates, Inheritance, and Gifts. (3).

A survey course of the law of taxation as applied to the transmission of property by gift or death and its impact upon accumulations of wealth. The constitutional basis, statutory implementation, administrative regulation, and court interpretation of the laws of the United States and the various states. PREREQUISITE: Management 3020.

7020. Law of Taxation of Estates, Inheritances, and Gifts. (3).

Estate planning from an individual viewpoint design to create, maintain, and distribute the maximum estate possible. Consideration is given to the aspects of law, insurance, real estate, investments, and taxes as they relate to the creation of estates of individuals and those who will be engaged in assisting others. PREREQUISITE: Management 7010.

7610. Analysis and Control of Business. (3).

An overall study of management problems and the application of scientific management techniques to the control of various phases of business operation. Included are: general management controls, financial management controls, sales management controls, production management controls, and personnel control and appraisal. PREREQUISITE: Management 6410 and Management 6610.

MARKETING

PROFESSOR CHARLES ROBERT SPINDLER, *Chairman*

Room 105, The College of Business Administration Building

In the department of Marketing, graduate students who select Marketing as a major area will consult their major adviser as to the program of study. The basic requirements are as follows: Prerequisites: 18 semester hours of marketing courses at the undergraduate level except in special cases approved by the Dean of The Graduate School and the Chairman of the Marketing Department.

The following 12 hours of required courses must be presented for a major in marketing at the graduate level: 7010, 7011, 7012, and 7013.

A minimum of 6 hours shall be selected from among the following courses: 7020, 7021, 7022, 7023, 7030, 7901, and 7996.

For the collateral area, 9 semester hours as approved by the adviser, are required.

7010. Current Aspects of Marketing. (3).

A comprehensive review of current marketing literature. Emphasis is placed on Marketing innovations from the standpoint of functions, institutions, and concepts.

7011. Marketing Strategies and Tactics. (3).

An analytical approach to planning as it relates to the marketing activities of a business enterprise. Focus is placed on: (1) Development of a qualitative-quantitative framework for decision-making; and (2) Fundamental strategies and tactics.

7012. Marketing Structure and Administration. (3).

An appraisal and diagnosis of organizational structure and executive action as they relate to marketing decisions regarding both external and internal factors.

7013. Marketing Controls. (3).

A study of the adjustment of marketing operations to predetermined standards or control values in an effort to minimize performance variations. Stress will be placed on communicating to management the vital information necessary for sound administrative and planning decisions.

7020. History of Marketing Institutions and Thought. (3).

An introduction to the concepts and theories advanced in the development of institutions, channels, functions, and processes in the field of marketing.

7021. Pricing Theories and Policies. (3).

An examination of the role of prices in our economy and of price making under varying conditions of competition. Also included is an examination of the acquisitive and social implications of pricing policies.

7022. Behavioral Approaches to Marketing. (3).

An analysis of the contributions of the behavioral science disciplines to consumer motivation, buying behavior, market adjustment, and product innovation. These processes are evaluated with reference to psychological drives and other behavioral science concepts at each stage of distribution.

7023. Quantitative Tools for Marketing. (3).

A critical examination of the various quantitative tools to gain an understanding of both capabilities and their limitations in marketing operations.

7030. Marketing Seminar. (3).

Special study of current problems in marketing. For the most part, individual studies will be pursued with group analysis and discussion.

7901. Problems in Marketing. (3).

Directed independent research projects in an area selected by the student with the approval of the staff member supervising. PRE-REQUISITE: 9 hours of graduate course work in Marketing.

7996. Thesis. (3-6).

Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the dean of The Graduate School.

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BUSINESS EDUCATION AND OFFICE MANAGEMENT

PROFESSOR RIENZI WILSON JENNINGS, *Chairman*

Room 107, The College of Business Administration Building

In the department of Business Education and Office Management, 18 semester hours of course work must be selected from courses listed in Areas I and II.

Area I (Minimum of 9 semester hours): Business Education 6400, 6401, 6410, 6540, 6660, 7420; Management 6210, 6420, or 6750.

Area II (Minimum of 9 semester hours): Business Education 7610, 7620, 7630, 7640, 7650, 7660, 7670, 7680, 7710-15, 7910; or Distributive Education 7640.

One elective to make up a total of 21 hours selected from Area I or Area II or courses listed below. At least 18 hours of all graduate courses must be at the "7000" level and at least 12 hours of the hours on the major must be at the "7000" level.

Electives: Economics 6310, 6720; Marketing 6010, 7010; or Management 6760. For the collateral area, 9 to 12 semester hours as approved by the adviser, are required.

6400. Punched-Card Methods. (3).

Introductory course in the operation and use of punched-card equipment. Key punching, sorting, tabulation and preparation of reports, card designing and application to problems in the fields of economics, marketing, accounting, personnel, education, and other areas of research. Both semesters.

6401. Punched-Card Applications. (3).

An advanced course in the field of data processing. The course provides study in flow charting systems analysis, card layout, systems design and production work on unit record equipment. Both semesters. **PRE-REQUISITE:** Punched-Card Methods 4400 and Accounting 2020.

6410. Office Management. (3).

Modern methods used in office organization and management, scientific office management, office reports, office correspondence, calculating and checking, filing, records retention, duplicating, handling the mail, planning procedures, planning for equipment, office machines, automation, planning for office space, physical working conditions and office layout. Fall semester.

6530. Executive Communications. (3).

Methods and techniques of communication are critically examined through the writing of case problems in correspondence with emphasis placed upon principles and correct writing; and in reports with importance placed upon the collection, analysis, organization, and presentation of authentic data. Open to graduating seniors and to graduate students, the course is primarily designed for the student who has had no basic study in either business correspondence or business report writing on the undergraduate level.

6660. Supervised Work Experience for Teachers of Vocational Business Subjects. (3).

Practical experience in relating theory and practice in the business laboratory surrounding the University and the metropolitan area of Memphis. A student enrolled in this course will be unable to take courses other than evening or Saturday courses because the major

portion of his time will be devoted to the activities involved in employment in an actual business position. **PREREQUISITE:** Permission of instructor. Summers only.

7420. Problems in Office Management. (3).
(Formerly Office Management).

Problems in actuating office employees and controlling the work of the office. Topics: Motivating Office Personnel; Job Evaluation; Recruiting and Training Office Employees; Office Supervision; Standards and Standardization; Quantity and Quality Control; Improving Procedures; Simplification; Office Forms; Measuring and Timing Office Work; Office Manuals; Office Costs and Budgets.

7610. Principles and Philosophy of Vocational Education. (3).
(Formerly Principles and Foundations of Vocational Business Education.)

The history, Philosophy, principles and objectives of vocational education; curriculum problems, contribution of vocational education to general education; research problems and current vocational education literature.

7620. Administration and Supervision of Vocational Education. (3).

Designed for in-service teachers. Curriculum construction, student evaluation, classroom supervision and rating, physical layout and administration of supplies, textbooks and equipment. Types of vocational office programs; the intensive laboratory, the cooperative program and supervised and directed work projects.

7630. Improvement of Instruction in Secretarial Business Subjects. (3).

A critical evaluation of content, visual aids, methods and testing in typewriting, shorthand and secretarial and office practice courses.

7640. Improvement of Instruction in Bookkeeping and General Business Subjects. (3).

A critical evaluation of content, visual aids, methods, and testing in bookkeeping and general business subjects.

7650. Teaching Office Practice, Office Machines, and Punched-Card Methods in High School. (3).

A study of content, methods and standards for courses in Office Practice in High Schools with special emphasis on the impact of automated Data Processing in the office.

7660. Tests and Measurements in Business Education. (3).

Study of standardized and published tests in business education; exploration of the new trends in testing; application of sound testing theory and techniques to business education with special emphasis on evaluation of skill development, the establishment of realistic office competencies, and the evolvement of grading standards.

7670. Seminar in Business Education. (3).

The purpose in this course is twofold: (a) to learn the methods and techniques of evaluating significant research studies and other current business education and related literature, and (b) to evaluate the progress that has been achieved in the conclusions of such literature to guide practical school use.

7680. Research and Thesis Preparation. (3).

This course is planned to offer the student practical experience in analyzing and solving typical problems in various fields of business.

Emphasis is placed on research techniques, report procedures, and applied presentation. The material is selected and designed to give needed supplementary guidance during thesis writing and/or problem solving in important areas other than content. An individual formal research problem is mandatory when the course is not taken to complete the sequence of one in which definite research and presentation are required.

7710-15. Workshop in Business Education. (3).

A study of some phase of the business education curriculum through the media of group study; participants will have opportunity to work on content, methods, techniques, materials, and evaluative criteria.

7710—Shorthand (3)

7713—General Business (3)

7711—Typewriting (3)

7714—Bookkeeping (3)

7712—Office Practice (3)

7715—Evaluation (3)

(Not more than 6 hours of workshop courses in Business Education can be applied toward a Master's Degree.)

7910. Problems in Business Education. (1-6).

Directed independent research projects in an area selected by the student with the approval of the staff member supervising. PREREQUISITE: Approval of supervising teacher and departmental chairman.

7996. Thesis. (3-6).

Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of The Graduate School.

DISTRIBUTIVE EDUCATION

PROFESSOR C. EDWIN PEARSON, *Chairman*
Room 401, The College of Education Building

In the department of Distributive Education the prerequisites are: a Bachelor's degree, 9 hours in Marketing, Salesmanship, Sales Promotion, Retailing or Advertising; Distributive Education 4630; verified practical experience in a distributive occupation(s).

Area I (minimum of 9 hours) Distributive Education 6640, 7993; Management 6210, 6420; Marketing 7010, 7011, 7012, 7013.

Area II (minimum of 9 hours) Distributive Education 6610, 6630, 7610, 7620, 7640, 7650, 7660, 7996, plus one elective (to make a total of 21 hours) selected from Area I, Area II, or from the following: Education 6011, 6303, 7511, 7521; Marketing 7020, 7021, 7022, 7030.

For the collateral area, 9 to 12 semester hours are required as approved by the adviser.

6610. Organization and Operation of Distributive Education Programs. (3).

A study of the background and development of distributive education in the United States; Federal and State legislation; curriculum implementation; establishing evaluating reporting and improving programs.

- 6630. Materials and Methods in Distributive Education. (3).**
The instructional materials and techniques used in high school and post-high school Distributive Education classes.
- 6640. Marketing for Distributive Education Teachers. (3).**
A study of current marketing practices, marketing functions, merchandising, prices and competition. **PREREQUISITE:** Permission of Distributive Education Department chairman.
- 7610. Principles and Philosophy of Vocational Education. (3).**
The history, philosophy, principles and objectives of vocational education; curriculum problems; contribution of vocational education to general education; research problems and current vocational education literature.
- 7620. Administration and Supervision of Vocational Education. (3).**
Designed for the vocational teacher or public school administrator desiring to accept responsibility for supervising vocational education programs at local, area or state levels. Includes study of program design; curriculum construction; classroom supervision; physical layout; administration of supplies, textbooks and equipment; state and federal legislation; accounting and reporting.
- 7640. Techniques of Coordination in Vocational Education. (3).**
Selecting training agencies; developing job analysis; selecting and briefing the training supervisor; selecting and working with advisory committees; utilizing other community resources.
- 7650. Problems in Distributive Education. (3).**
A study of current trends and problems related to distributive education; viewpoints of leaders in the field; special attention to problems of students enrolled.
- 7660. Organizing and Teaching Adult Distributive Education. (3).**
A study of the techniques of working with trade associations, employment services, Manpower programs, itinerant instructors and the unique features of planning, organizing, promoting, teaching and evaluating balanced continuing education programs for distributive occupations.
- 7670. Distributive Education in the Junior College. (3).**
For teachers and administrators. A study of the objectives, nature and scope of post-secondary distributive education programs. Included will be suggestions for planning, developing, operating and evaluating programs in area vocational schools, technical institutes and junior colleges.
- 7993. Work Experience in Distribution for Distributive Education Teachers. (1-3).**
For graduate students needing recent practical experience in a distributive occupation. Students will be employed in cooperating businesses and assigned duties in sales production and in personnel training. The student will prepare a comprehensive written report of his practices, experience and problems and special investigations. **PREREQUISITE:** Teaching experience.
- 7996. Thesis. (3-6).**

EDUCATIONAL ADMINISTRATION AND SUPERVISION

PROFESSOR DEVOY A. RYAN, *Chairman*

Room 409, The College of Education Building

In the department of Educational Administration and Supervision all students majoring in the department who are seeking certification will be required to complete a core of 9 semester hours, as follows: Ed. A. S. 7100, 7300, and *6400.

- A. Preparation for the superintendency requires the following specialized courses: Ed. A. S. 7120, 7140, 7200, one other course from departmental offerings, and Educ. 7401.

Electives: Six semester hours outside the department of Educational Administration and Supervision and one other course selected from any supporting area.

- B. Elementary Administration and Supervision requires the following specialized courses: Ed. A. S. *6110, 7220, two other courses from departmental offerings and Educ. 7111, 7201, and 7401.

Electives: Three semester hours selected from any supporting area.

- C. Secondary School Administration and Supervision requires the following specialized courses: Ed. A. S. 7150, 7210, two other courses from departmental course offerings, and Educ., 6112, 7401, and 7531.

Electives: Three semester hours selected from any supporting area.

- D. General Educational Administration (not preparatory to certification). Core requirements are Administration, 3 semester hours, Supervision 3 semester hours, and Research 3 semester hours.

Specialized courses (12 semester hours) may be selected from departmental offerings.

Electives: Nine semester hours to be selected outside the Department of Educational Administration and Supervision and three semester hours to be selected from any supporting area.

- E. The Specialist in Education. The Specialist in Education degree will offer specialization for the public school superintendency, the elementary principalship, the secondary principalship and other administrative positions. Further information pertaining to the Ed. S. can be secured from the Department of Educational Administration and Supervision.

- F. The Doctor of Education. The degree of Doctor of Education will offer emphasis in Educational Administration and Supervision. Further information pertaining to the Ed.D. can be secured from the Department of Educational Administration and Supervision.

6110. Elementary School Administration. (3).

A study of the major aims of the elementary school; planning the daily program through the integration of related subjects; learning to keep and interpret various types of records and reports. Considering the importance of proper teacher-parent relationships. Special emphasis on the P. T. A. program in Tennessee.

*Not required if equivalent course taken at the undergraduate level. (Substitutions must be approved by the adviser.)

6400. School and Community Relationships. (3).

The relationship of the school to the community movements and organizations concerned with health and safety, government and civic life, religion, occupations, extension services, children's organizations and clubs, adult education, cultural education, community cooperative movements, etc.; relationships of the community to such school activities as attendance, athletics, lunch, libraries, extracurricular program, home study, records and reports, guidance, etc.

7100. Public School Organization and Administration. (3).

The following will be studied: the administrator and his leadership; his relation to all agents and agencies of the school; types of school organization, administrative and instructional supervision; classification and promotion of pupils; curriculum activities and materials; public relations; office administration, plant operation, assemblies, extra-instructional activities; special classes, library, and health program.

7120. School Finance. (3).

The theory and practice of financing public education in the United States, development of guiding principles of educational finance, trends and needs in state and federal participation in school support, and local operational finance; particular attention to the financing of the public schools of Tennessee.

7130. School Business Administration. (3).

The role of business administration in public education; principles and practices of auditing, budget preparation and control, debt service, insurance, legal aspects, payroll administration, purchasing, supply management and transportation.

7140. School Plant. (3).

A consideration of the school plant, grounds, and major equipment in relation to the educational needs of the community; factors in site selection, procedures in planning school buildings, principles of design and construction, architectural and contractual services and maintenance.

7150. High School Administration. (3).

This course is offered as a concise description of modern useful practices in organizing and administering secondary schools, types of high schools, selection and assignment of staff, program of studies, records, management of buildings and grounds, pupil personnel guidance, selection, retention and improvement of teachers, and interpreting the school to the public.

7160. Administration of School Personnel. (3).

This course is designed to deal with the various aspects of school personnel management. Qualification, selection, pay schedules, and general personnel policies dealing with retirement, sick leave, insurance, and other such problems will be considered. Attention will be given to the efficient use of administrative, instructional and non-instructional personnel.

7170. Internship in School Administration. (3 or 6).

This course is designed to provide practical experience to students of school administration. The student will have opportunity to observe and participate as an administrative intern in selected school systems. The areas of observation and participation will include administration, supervision, school-community relationship, finance, and plant and

transportation at secondary and/or elementary levels. Prospective enrollees should give thirty days notice of intention and secure approval of the chairman of the department.

7180. School Law. (3).

This course is designed to consider the Federal and State statutes and local regulations which are applicable to the field of education. Emphasis is placed on legal requirements and their implications for public school operation. Court decisions relating to public schools are considered. The course is for administrators and students of administrative procedures.

7200. City and County School Supervision. (3).

A course designed to consider the general supervisory functions and techniques in school systems. The purpose of the course is to help the administrator and supervisor evaluate present programs and practices and from the evaluations plan in-service-training experiences which lead to improved instruction.

7210. High School Supervision. (3).

This course is designed to investigate some of the modern theories, principles and practices of school supervision as they apply to the practical problems of supervision at the secondary school level. Qualifications, selection and performance of supervisors are considered, along with the functional demands on modern secondary schools.

7220. Elementary School Supervision. (3).

This course deals with significant supervisory problems at the elementary school level. Recent research findings will be used to focus on the problems as they are dealt with through democratic elementary school supervision.

7300. Techniques of Educational Research. (3).

A study of techniques used in the solution of educational problems with the objectives of (1) appreciation and critical evaluation of the work of others, and (2) the ability to use one or more techniques. Particular attention will be given to techniques of problem solving by group process.

7410. Human Relations in School Administration. (3).

The course will emphasize human relations in successful educational leadership positions. Human relations principles will be applied to the various responsibilities of school leaders, and research findings in this field will be interpreted for successful practices in school administration. Investigation of the practices and concepts of school leadership will be designed to help the student develop a personal philosophy which will be of practical benefit in his position.

7500. Contemporary Issues in Educational Leadership. (3).

Seminar on contemporary issues confronting leaders in American education currently before the profession and the public. The role of the administrator in resolving contemporary issues.

7510. Seminar in Educational Leadership. (1-6).

This course is designed primarily for persons in positions of educational leadership. It will deal with problems and issues deriving from movements and trends in our present day culture. Emphasis will be given to educational leadership arising therefrom.

- 7700. Special Problems in School and Community Relationships. (1 to 3).**
Individual investigations and reports of specific problems.
- 7710. Special Problems in School Supervision. (1 to 3).**
Individual investigations and reports of specific problems.
- 7720. Special Problems in School Plant and Transportation. (1 to 3).**
Individual investigations and reports of specific problems.
- 7730. Special Problems in School Finance and Business Management. (1 to 3).**
- 7750. Special Problems in School Law. (1 to 3).**
Individual investigations and reports of specific problems.
- 7760. Special Problems in Educational Research. (3).**
Individual investigations of public school surveys, with a critical study of current practices, trends, and objectives.
- 7996. Thesis. (3-6).**
Only students with superior scholarship are permitted to register in this course. The students must present in writing an outline describing the proposed thesis. This outline, when approved by the faculty members under whose direction the thesis is to be written, must be submitted to the Chairman of the Department of Educational Administration and Supervision for his approval. This course will involve writing the thesis and will emphasize the adequate setup of the problem, the collection of the data, their use, and conclusions to be reached.
Application for writing a thesis must be filled out on an approved form, after consultation with the major professor and filed with the Dean of The Graduate School at the time of registration.
- 8000. Educational Specialist Thesis. (3-6).**
(See course 7996 description)
- 8100. Theories and Practices of Educational Administration. (3).**
The study will be concerned with the basic theories of the organization and administration of public education; philosophical and historical foundations of theories; historical development of theories in current practices; and exploration of possible future administrative theories. **PREREQUISITE:** Education 7100 or permission of instructor.
- 8110. Studies and Research in School Administration. (3).**
A study of emerging concepts of school administration. The areas to be covered will emphasize research and studies in the elements of administrative behavior, the dynamics of administration, and the administrative process. **PREREQUISITE:** Permission of instructor.
- 8120. Economics of Education. (3).**
The study will consist of the theory and practice of education as an economical factor in American society; local, state, and federal sources of school revenue; and the process of public school expenditure. **PREREQUISITE:** Education 7120 or permission of instructor.
- 8140. Advanced School Plant and Practicum. (3).**
Emphasis will be placed on the work of the district and state director of school plant planning; the preparation of educational specifications; blueprint reading in relation to educational specifications; and current

practices and literature in school plant planning. The student will spend time in field trips and field work concerned with effective and efficient school plant planning and construction. PREREQUISITE: Education 7140 or permission of instructor.

8160. The Administration of Pupil Personnel. (3).

This course acquaints the student with pupil personnel services including accounting, reporting, classification, attendance, and problems of pupils' adjustment to the school situation. PREREQUISITE: permission of instructor.

8180. Seminar in School Law. (3).

A seminar incorporating the body of school law, both statutory and case. Students will be given the opportunity to explore judicial interpretations and legal principles underlying statutes and court decisions. Opportunities will be given to develop these topics so as to reach larger issues of policy in school administration. PREREQUISITE: permission of instructor.

8190. The Organization and Structure of Higher Education. (3).

Educational policies, functions, and practices in the administration of higher institutions, with emphasis upon the various types of organizational structure and services. PREREQUISITE: permission of instructor.

8191. The Community College. (3).

A survey of the history and philosophy of the community college, its place and function, establishment and control, administration, curriculum, staff, supporting physical plant, student population, guidance, and public relations. PREREQUISITE: permission of the instructor.

8200. The Administration of Instructional Programs and Materials. (3).

Practices and the processes used by administrative and supervisory leaders who plan, organize, and co-ordinate the professional activities of teachers in improving pupil-learning experiences. PREREQUISITE: permission of instructor.

8210. Seminar in Educational Supervision. (3).

The course will involve intensive studies of development and research in the supervision of the several areas of instruction in the public schools. Emphasis will be placed on identifying effective techniques to meet current instruction improvement requirements. PREREQUISITE: permission of instructor.

8300. The School Survey. (3).

The history and development of public school surveys, with a critical study of current practices, trends and objectives. Long-term planning of educational programs is emphasized. Field experience in school surveys will be made available to students taking the course. PREREQUISITE: Education 7300 or permission of instructor.

8400. Administrative Leadership and School Public Relations. (3).

This course is designed to improve executive communications involved in the projection of a desirable school image. Emphasis will be placed on public relations, news media, and school publications. PREREQUISITE: permission of instructor.

8950. Dissertation Seminar. (3).

Designed to provide graduate students an opportunity to develop research studies. Based on research and statistic courses previously

completed or in progress, the student will have an opportunity to expand his knowledge and use of research techniques. A dissertation prospectus is submitted for analysis before approval by the student's graduate committee. **PREREQUISITE:** admission to candidacy and consent.

9000. Doctoral Dissertation. (3-12).

ELEMENTARY AND SECONDARY EDUCATION

PROFESSOR RODNEY TILLMAN, *Chairman, Elementary Education*
Room 417, The College of Education Building

PROFESSOR HEBER ELIOT RUMBLE, *Chairman, Secondary Education*
Room 424, The College of Education Building

MAJOR AREAS:

In the departments of Elementary Education and Secondary Education, students may select from several programs, each of which require a nine semester hour Core consisting of Education 7001, 7521, and 7401. Additional requirements are as follows:

A. Master of Arts in Teaching (for those seeking secondary school certification).

This program is designed for a selected group of students who have not completed an undergraduate teacher preparation program but who have exhibited outstanding academic ability, and who desire to qualify for teaching careers in the secondary school. Courses Required: Education 7121, 7301, 6841, and twelve semester hours in areas of endorsement. Total 36 semester hours.

B. Master of Arts in Teaching (for those who hold secondary school certification).

Courses Required: 6112, 7301, 7511, and fifteen semester hours.

C. Master of Education in Secondary Education (generally for those already certified.)

Courses Required: 6112, 7511, 7301, 7100, and twelve semester hours of electives (of which at least three hours must be in the student's endorsement.) If a candidate does not hold a professional certificate, he will be required to complete prerequisite and/or corequisite undergraduate requirements as determined by a committee of the department. Total 33 semester hours.

D. Master of Education in Elementary Education (for those who will have at least one year of successful teaching experience before becoming a candidate for the degree.) Students are required to consult with adviser as to the program of study.

E. Master of Education in Guidance (for elementary teachers).

Courses Required: Education *6611, 7621, 7631, 7651, 7661, 7681, 7692; electives three semester hours. Total 33 semester hours.

F. Master of Education in Guidance (for secondary teachers).

Courses Required: *6611, 7121, 7631, 7651, 7661, 7681, 7691; electives three semester hours. Total 33 semester hours

G. Master of Education in Guidance and Counseling for Non-Certificated Personnel.

The degree of Master of Education in Guidance and Counseling for non-certificated personnel is designed for employment counselors, ministers and others outside the field of education who need skills in guidance but for whom such a program is not readily available. Courses required: Education *6611, 7521, 7631, 7651, 7661, 7681, two additional guidance courses, and additional semester hours for a total of 33. Courses not otherwise specified are to be determined by the degree candidate and his adviser to meet individual needs. The Core is not required for this degree.

H. Master of Education in Reading (for those who will have at least one year of successful teaching experience before becoming a candidate for the degree and wish preparation as a reading specialist, a reading clinician or as a classroom teacher with special emphasis in the teaching of reading.)

Courses required: either *6242 or 7243, *6344 or 7344, 7244, 7245; six semester hours additional in Reading Education to be selected with guidance of the adviser in keeping with the professional aims of the student; six semester hours elective. Total 33 semester hours.

I. The Specialist in Education. The Specialist in Education degree will offer specialization in (1) Guidance, (2) Reading, (3) Secondary Education, and (4) Elementary Education. Any area approved for graduate study will be acceptable for related work, so long as it contributes to the program of the student. No area will be acceptable unless it meets with the approval of the candidate's committee. Candidates for the degree will be required to complete Education 7521 and Education 7541. At least nine semester hours of 8000-level courses in Education will be required. No more than six hours of 6000-level courses will be accepted.

J. The Doctor of Education. The degree of Doctor of Education will offer emphasis in (1) Curriculum and Instruction and (2) Personnel Services. Any area approved for graduate study will be acceptable for related work, so long as it contributes to the program of the student. No area will be acceptable unless it meets the approval of the candidate's committee. Candidates for the degree will be required to complete three courses in research and statistics: Education 7521, Education 7541, and Education 8542. No 6000-level courses will be accepted.

COLLATERAL AREAS:

In the departments of Elementary Education and Secondary Education, the collateral area consists of 9 semester hours of the CORE courses, or Education 7401 (3) and 6 additional semester hours in the department offering the Collateral area as approved by the Collateral area adviser.

The Core Courses

7001. Foundations of Education. (3).

This course includes a study of the historical, philosophical, and social forces influencing modern American education.

7401. Fundamentals of Curriculum Development. (3).

A study of the fundamental aspects of curriculum development and the basic issues underlying curriculum. Four significant aspects are: educational directions; ordering potential experiences; patterns of curriculum organization; and the determination of principles and procedures by which changes in the curriculum can be made, evaluated and sustained.

*Not required if equivalent course taken at the undergraduate level. (Substitutions must be approved by the adviser.)

7521. Introduction to Educational Research. (3).*(formerly Educational Statistics and Research Methodology)*

This course includes the kinds of research: documentary, experimental, case study, descriptive. The student is expected to select a research topic and prepare an appropriate design for it. Functional statistics are included.

HISTORY AND PHILOSOPHY OF EDUCATION**6011. History of Education. (3).**

This course traces through European history some of the more important educational problems of modern times as they have been affected by the social and political acts of history, by the contributions of some of the leading educational theorists, and by institutional practices.

6012. History of Education in the United States. (3).

This course aims to trace, describe, and evaluate, in the light of accepted facts, the development and growth of our educational practice, institutions, and theories from the beginning of colonial life to the present time.

6021. Philosophy of Education. (3).

The purpose of this course is to furnish a guide to the philosophical treatment of, and to develop in the student some facility in critical and systematic thinking about, educational problems.

6031. Educational Sociology. (3).

Group behavior in the educational process; sociological factors involved in the interaction of pupils, teachers, administrators, and community.

7001. Foundations of Education. (3).

(See Core Courses).

7011. Educational Thought. (3).

This is a study of the evolution of educational theories and philosophies with particular reference to their impact upon educational developments in the United States.

7031. Social Foundations of Education. (3).

This course is designed to study education as a cultural universal. It emphasizes the mutual influence of social institutions and education as well as the factors involved in the socialization of the student personality.

7041. Comparative Education. (3).

This course is designed to offer a scientific study of education in various cultures by exploring the relationships that exist between a given educational system and the philosophy, history, geography, and technology of the people. This course is planned to give background and meaning to the content and method in the area of the social studies with special emphasis on international understanding.

EDUCATIONAL PSYCHOLOGY**6112. The Psychology of Adolescence. (3).**

A study of the characteristics of the adolescent stage of development that should be taken into account in the planning and teaching of secondary school courses of study, in the supervision of extra-class activities in the secondary school, and in guiding and counseling with adolescents.

6131. Mental Hygiene and the School. (3).

Guidance for the teacher in working on her own personality development and a study of the mental hygiene of the child as affected by his total environment, past and present.

7111. Advanced Child Study. (3).

The interrelatedness of all phases of growth as it affects the elementary school child in the home, school, and society.

7121. Educational Psychology. (3).

This is an advanced course in the psychology of teaching and learning designed especially for experienced teachers and administrators who desire to pursue graduate study in the field of education.

8121. Seminar in Problems of Classroom Learning. (3).

A course designed for the advanced graduate student in Education who is particularly interested in investigating problems of classroom learning, with special attention directed to the application of learning theories to classroom procedures. **PREREQUISITE:** Education 7111, 7121, 7521.

READING

6242. The Teaching of Developmental Reading. (3).

(Formerly Improving the Teaching of Reading)

Survey of reading methods and research for the person who has had experience in the classroom.

6344. The Teaching of Reading in the Secondary Schools. (3).

A course designed for teachers at the secondary level, either in the content areas or specialists, exploring methods, materials, and organizational patterns by which reading skills can be developed in the secondary schools.

6751. Workshop in the Reading Program. (3-6).

Through the media of group study, discussion, demonstrations, directed observation, and laboratory work, participants will have opportunity to formulate plans for their reading program as to content, methods and techniques, materials, and evaluative criteria.

7242. Advancing the Teaching of Language Arts. (3).

Designed to provide experienced teachers and advanced degree candidates with knowledge of current thinking and research in teaching language as communication, with special emphasis on speaking, listening, and writing. Modern media, linguistics, and the influence of socio-economic factors on language will be considered.

7243. Modern Reading Instruction. (3).

A survey of developmental reading, analyzing the total process in depth: the psychological foundations, the application of learning theory to reading instruction, new approaches, media and the critical evaluation of materials. **PREREQUISITE:** Teaching experience.

7244. The Diagnosis of Reading Problems. (3).

(formerly 7246, Diagnostic and Remedial Reading in Elementary and Secondary Schools)

An introduction into the identification of problems of pupils who have reading difficulties, including the psychological bases for reading retardation, and the diagnostic procedures used to determine the type and extent of reading disability. **PREREQUISITE:** Teaching experience and Education 6242 or 7243.

7245. The Treatment of Reading Problems. (3).

Designed to provide knowledge of materials, programs and techniques to be used in classroom treatment to aid pupils in overcoming reading disability; including experience in teaching small groups who need such help. PREREQUISITE: Education 7244.

7246. Teaching Reading to Exceptional Children. (3).

Identification of exceptional children, investigation of problems related to the education of such children, either slow learning or gifted, and the exploration of methods, techniques and materials for effective reading instruction.

7247. Teaching Reading for and Through the Subject Areas (Primarily Elementary). (3).

A course to give a teacher of any subject at elementary or secondary level knowledge of reading skills necessary for most efficient study in that field, and to show how reading instruction may be concomitant with learning of the content of any discipline. Classroom diagnosis of pupils' reading skills and development of materials are aspects of the course. (Credit in this course may not apply toward a degree if the student has credit in 4344 or 6344.)

7442. Curriculum and Supervision in Reading. (3).

A study of selected curricula and the planning of a sound school program in reading; understanding the functions and duties of the reading supervisor or consultant and the effective ways of implementation. PREREQUISITES: Education 6242 (or 7243), 7244, and 7245.

7843. Supervised Practicum in Reading Program. (3).

A supervised application of the principles and methods of instruction and reading curriculum planning as they apply to practical situations which a reading supervisor or special reading teacher might encounter.

8533. Seminar in Reading Research, I. (3).

Investigation of research related to reading instruction with emphasis on individual study and group analysis. The purpose is to study significant research in order to learn methods and techniques and to evaluate findings in terms of advancing reading education. PREREQUISITE: Education 7245.

8534. Seminar in Reading Research, II. (3).

Designed to further the student's understanding of research as it relates to reading leading to the formulation of a pilot study in reading research. PREREQUISITE: Education 8533.

8841. Reading Clinic I. (3).**8842. Reading Clinic II. (3).**

The first semester is devoted to a laboratory experience designed to acquaint the student with clinical procedures used in evaluating reading disability. It includes observation, practice under supervision in the administration of reading clinical instruments and the interpretation of the results. PREREQUISITES: Education 7244 and 7245.

The second semester is a laboratory experience designed to provide the theoretical and practical experience gained by using special techniques and materials for teaching reading to the severely disabled reader.

KINDERGARTEN AND ELEMENTARY EDUCATION (K-8)

6245. The Teaching of Children's Literature in the Elementary School. (3).

This is a course designed to improve the methods of teaching children's literature in the elementary school. Units on story telling, dramatization, choral speech work, and the correlation of literature with the content subjects will be carried out.

6252. The Teaching of Modern Mathematics in the Elementary School (Grades 1-8). (3).

This is an advanced course acquainting prospective and experienced teachers with the mathematical process required of the elementary child and giving an insight into reasons why certain methods are used.

6262. The Teaching of Natural Science in the Elementary School. (3).

This is an advanced course in the study of the natural environment as a child would view it. A survey of the suitable equipment and materials for the elementary classroom and limited experience at carrying on experiments at the child's level.

6301. Audio-Visual Instructional Materials in Education. (3).

Introduction to means for effective preparation and utilization of selected multi-media materials. Laboratory practice in operation of audio-visual equipment and development of selected materials and techniques centered around student interests. Emphasis on the implications of audio-visual media for teaching.

6701. Workshop in the Improvement of Instruction. (3).

This course is designed primarily to assist in-service and prospective teachers of grades one through twelve to improve the instruction-learning program. Attention is given to common elements of basic methodology such as purposes of education, classroom learning, motivation of learning, the utilization of appropriate materials and resources, evaluation of teaching and learning, etc. Attention is also given to ways and means of applying these elements of methodology in the several instructional areas of the elementary school and in the particular subject areas of the secondary school.

6721. Workshop for Teachers in the Elementary School. (3).

A course designed to meet the needs of in-service teachers by offering an opportunity to work cooperatively on problems which are real to teaching situations and which meet the needs of the individual. **PRE-REQUISITE:** Teaching experience and consent of the director of the workshop.

6761. Aerospace Education in Schools. (3).

The purpose of this course is to provide teachers with aerospace knowledge and experiences and ways of utilizing this knowledge and experience in the classroom.

6811. Supervised Practicum in the Kindergarten. (3-6).

(formerly Directed Student Teaching in the Kindergarten)

Observation of the growth and development of pupils and methods of teaching; participation in school activities, culminating in assuming responsibility for teaching entire groups.

6821. Supervised Practicum in the Elementary School. (3-9).

(formerly Directed Student Teaching in the Elementary School)

Observation of the growth and development of pupils and of methods

of teaching; participation in school activities, culminating in assuming responsibility for teaching entire groups.

- 6822. Supervised Practicum in the Elementary School. (3-6).**
(formerly Directed Student Teaching in the Elementary School)
 For the student who has completed six semester hours or less of student teaching in the elementary school and desires some additional experience.
- 7201. Trends in Elementary Education. (3).**
 Trends in classroom organizations and procedures. Innovations, approaches and directions applicable to the improvement of instruction are considered.
- 7211. Values and Principles of Early Childhood Education. (3).**
 This course is designed to study current curricula, trends and issues related to kindergarten through the primary grades. Emphasis will be placed on the principles and values of early childhood education; current research; selection, organization, evaluation of learning experiences; and parent-teacher relationships.
- 7253. The Teaching of Intuitive Geometry in the Elementary School (Grades 1-8). (3).**
 Teaching of intuitive geometry as it occurs in the elementary grades. Because of the increased recognition geometry is receiving, this course provides the elementary teacher with a wide variety of activities useful with elementary children.
- 7272. Current Curriculum Development in Social Science Education. (3).**
 Emphasis on current developments which are consistent with the needs, interests, and social problems which elementary school children face today. Each student is expected to be familiar with research, new programs and issues related to social science education.
- 7991. Special Problems in Instruction. (1-3).**
 Individual investigation and report in the area of classroom instruction under the direction of a faculty member.
- 8201. Survey of Research in Elementary Education. (3).**
 A survey, evaluation and possible applications of research concerning theory and practice in the elementary school.
- 8202. Seminar in Elementary Education. (3).**
 Basic concepts and programs in elementary education with special emphasis on current literature in the field.
- 8421. Elementary School Education. (3).**
 An appraisal of modern curriculum practices, including emphasis on underlying philosophies, as they affect the child, his potential, and his growth.

SECONDARY EDUCATION

- 6301. Audio-Visual Instructional Materials in Education. (3).**
(See K-8).
- 6701. Workshop in the Improvement of Instruction. (3).**
(See K-8).

- 6741. Materials and Methods of Teaching High School ———. (3).**
A workshop in teaching methods in a specified endorsement area.
- 6791. Materials and Methods of Teaching High School ———. (3).**
An advanced course in a specified endorsement area, partly taught by means of televised instruction.
- 6841. Supervised Practicum in the Secondary School. (3-9).**
(formerly Directed Student Teaching in the Secondary School)
Observation of the growth and development of pupils and of methods of teaching; participation in school activities, culminating in assuming responsibility for teaching entire groups.
- 6842. Supervised Practicum in the Secondary School. (3-6).**
(formerly Directed Student Teaching in the Secondary School)
For the student who has completed six semester hours or less of student teaching on the secondary level and desires some additional experience.
- 7301. Modern Methods in Secondary Education. (3).**
A consideration of the overall task or function of secondary education and what this means to secondary school teaching. How the secondary school can perform its role most effectively.
- 7302. Preparation of Inexpensive Instructional Materials. (3).**
Design and preparation of a wide variety of readily-available instructional materials. Laboratory practice is provided in applying techniques such as lettering, coloring, and mounting of illustrations and other materials in preparation of both transparent and non-transparent graphics.
- 7303. Utilization of Audio-Visual Media.**
Analysis of communication theory; development of message design in utilization of multi-sensory aids in theoretical and practical environments; projects developed and presented for class analysis; laboratory experience in media equipment; evaluation and selection of media.
- 7306. Techniques, Activities, and Materials of Adult Education. (3).**
This course is designed to place emphasis on advanced techniques, activities, and materials used in adult education. Emphasis will also be placed on action research as applied to practical adult education programs.
- 7341. Seminar in the Teaching of High School English. (3).**
Includes both curriculum and instruction of high school English; selection of materials and the derivation of procedures for guiding learning in language, composition, and literature. Concentration by individual students upon special problems.
- 7431. The Modern Junior High School. (3).**
Origin and functions of the junior-high-school; prevailing nationwide practices in its educational program; and a description of suggested improved programs and procedures not yet common to the typical school.
- 7847. Intern Teaching in the Secondary School. (3).**
A professional experience in supervised teaching designed for candidates for the degree of Master of Arts in Teaching who are seeking secondary school certification. Intern teaching consists of full-time

teaching for two semesters providing nine semester hours of credit with not more than six semester hours during any one semester.

PREREQUISITES: Education 7001, 7401, 7521, and Education 7121 or 7301, or one course (6000- or 7000- level) in the student's endorsement, approval of the student's adviser, approval of the Coordinator of Student Teaching, and acceptance as an intern by a cooperating school system.

7848. Intern Teaching in the Secondary School. (3).

This is the second semester of intern teaching for the student who has successfully completed Education 7847. **PREREQUISITE:** Education 7847.

8301. Seminar in the Improvement of Instruction in the Secondary School. (3).

Factors bearing upon the improvement of instruction in the secondary school; the evaluation of research and the individual study of fundamental problems in the improvement of instruction in the secondary school. **PREREQUISITE:** Education 7401.

8441. Seminar in Secondary Curriculum Development. (3).

Factors bearing upon the development of a qualitative learning environment in the secondary school; the evaluation of research and the individual study of fundamental problems in secondary curriculum development. **PREREQUISITE:** Education 7401.

CURRICULUM AND SUPERVISION

6421. Curriculum Problems and Trends in the Elementary School. (3).

This course deals with general educational objectives and means of achieving them; the role of the various school subjects and their relationships, and with the organization and use of units of work in the core curriculum.

6441. Curriculum Problems and Trends in the Secondary School. (3).

This course is designed to afford some help in the clarification of secondary school educational purposes and in determination of appropriate learning activities. It deals with the functional teaching objectives, ways of attaining these objectives, methods of establishing relationships among the school subjects, developing the core curriculum, and the organization and use of units of work.

7151. Administering and Supervising Public School Education Programs. (3).
(See Special Education).

7161. Advanced Theory in Curriculum Development for the Mentally Retarded. (3).
(See Special Education).

7401. Fundamentals of Curriculum Development. (3).

A study of the fundamental aspects of curriculum development and the basic issues underlying curriculum planning. Four significant aspects are: educational directions; ordering potential experiences; patterns of curriculum organization; and the determination of principles and procedures by which changes in the curriculum can be made, evaluated and sustained.

- 7431. The Modern Junior High School. (3).**
Origin and functions of the junior-high-school; prevailing nationwide practices in its educational program; and a description of suggested improved programs and procedures not yet common to the typical school.
- 7442. Curriculum and Supervision in Reading. (3).**
A study of selected curricula and the planning of a sound school program in reading; understanding the functions and duties of the reading supervisor or consultant and the effective ways of implementation. PREREQUISITES: Education 6242 (or 7243), 7244, and 7245.
- 7461. The Pupil Activity Program. (3).**
A study of current philosophy and practice in regard to responsibilities of teachers, supervisors, and administrators for those phases of educational practice which are essential for the educational program, but are not considered as part of general classroom procedure.
- 7531. Seminar in Curriculum Improvement. (3).**
(formerly Research in Curriculum and Instructional Problems)
An evaluation of investigations and experimental evidence underlying the aims and instructional practices of the various subject-matter fields of the public schools.
- 7801. Supervision of Student Teaching. (3).**
This course deals with principles and techniques of supervising student teaching. It is designed for supervising teachers, administrators, coordinators of student teaching programs, and college personnel who supervise student teachers.
- 7992. Special Problems in Curriculum. (1-3).**
Individual investigation and report in the area of curriculum development under the direction of a faculty member.
- 8421. The Elementary School Curriculum. (3).**
(See K-8)
- 8441. Seminar in Secondary Curriculum Development. (3).**
(See Secondary School.)

EVALUATION AND RESEARCH

- 7511. Measurement and Evaluation. (3).**
(formerly Educational Tests and Measurements)
Consideration of good evaluation practices, the preparation and use of informal objectives and essay-type tests, a study of typical standard tests, and an introduction to elementary statistical procedures. This course is not required of students who have completed a similar course at the undergraduate level.
- 7521. Introduction to Educational Research. (3).**
(formerly Educational statistics and Research Methodology)
This course includes the kinds of research: documentary experimental, case study, descriptive. The student is expected to select a research topic and prepare an appropriate design for it. Functional statistics are included.
- 7541. Statistical Methods Applied to Education, I. (3).**
Use and interpretation of statistical methods in education. Instruction in the simpler statistical calculations, such as measures of central

tendency, measures of variability, correlation techniques, and procedures in testing statistical hypotheses using educational data. Emphasis is given to the development of the ability to read and interpret statistical data.

- 7991. Special Problems in Instruction. (1-3).**
Individual investigation and report in the area of classroom instruction under the direction of a faculty member.
- 7992. Special Problems in Curriculum. (1-3).**
Individual investigation and report in the area of curriculum development under the direction of a faculty member.
- 7993. Special Problems in Guidance. (1-3).**
Individual investigation and report in the area of guidance under the direction of a faculty member.
- 7994. Special Problems in Special Education. (1-3).**
Individual investigation and report in the area of Special Education under the direction of a faculty member.
- 7996. Thesis. (3-6).**
Only students with superior scholarship are permitted to register in this course. The student must present in writing an outline describing the proposed thesis. This outline, when approved by the faculty members under whose direction the thesis is to be written, must be submitted to the Chairman of the Department of Educational Administration and Supervision for his approval. This course will involve writing the thesis and will emphasize the adequate setup of the problem, the collection of the data, their use, and conclusions to be reached.
Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of The Graduate School at the time of registration.
- 8000. Education Specialist Thesis. (3-6).**
- 8521. Advanced Educational Research. (3).**
A study of the major types of statistical designs in educational research. Randomized, randomized block and Latin square designs. Factorial experiments and related topics. An intensive study of both pure and quasi-experimental designs. Emphasis will be placed on designs, methods, and procedures used in studying problems in education. **PREREQUISITES:** Education 7521 and Education 7541.
- 8542. Statistical Methods Applied to Education, II. (3).**
A second course in educational statistics. Tests of statistical inference, chi-square, simple analysis of variance and covariance, non-parametric methods, partial and multiple correlation, introduction to multi-variance analysis, and related topics. Emphasis is given to the assumptions, uses, and limitations of each statistic discussed. **PREREQUISITE:** Education 7541 or consent of the instructor.
- 8591. Dissertation Seminar. (3).**
This seminar is designed to provide opportunity to expand knowledge and use of research and statistical techniques. Before approval of a dissertation prospectus by the student's graduate committee, the prospectus must be submitted for analysis in his seminar. Approval of prospectus by candidate's committee is necessary for credit to be awarded. **PREREQUISITES:** Admission to candidacy and consent.

9000. **Doctoral Dissertation.** (3-12).

GUIDANCE AND PERSONNEL SERVICES

6611. **Procedures, Administration, and Organization of Guidance Services in Schools.** (3).

Historical background and growth of the guidance movement; sociological, psychological, and educational foundations; functions, scope, organization and administration of guidance services; duties and responsibilities of administrators, and specialists in guidance programs.

6771. **Workshop in the Administration of Guidance Services.** (3).

This course is designed primarily to assist in-service and prospective teachers and administrators in providing more effective guidance services in grades one through twelve. Services to be considered may be grouped as follows: inventory, information, counseling, placement, and follow-up. Particular attention will be given to planning, organizing, and evaluating these services.

7621. **Problems of the Elementary School Child.** (3).

An analysis of social, emotional, and educational problems in the development of the elementary school child, with emphasis on guidance approaches for preventing these problems and helping children resolve their conflicts as they occur.

7631. **The Group Process as Applied to Guidance.** (3).

This course is a study of the group process as applied to the role of teachers and counselors in Guidance. It includes homeroom and group guidance procedures, and the counselor's function in working effectively with students, administrators, and teachers in the school.

7651. **Diagnostic Techniques in Guidance.** (3).

(formerly Diagnostic Techniques)

Analysis and use of the diagnostic techniques basic to school guidance and counseling. How to select, use, and interpret devices for gathering data about students; how to assemble and interpret data from cumulative records and case histories. PREREQUISITE: a course in measurement and evaluation.

7661. **Educational and Occupational Information.** (3).

This course is concerned with needs, trends, training facilities, and vocational opportunities. Emphasis will be placed on gathering, interpreting, and using all types of educational, social, occupational, and community information in the guidance program.

7681. **Techniques of Counseling.** (3).

This course includes a consideration of different schools of thought in counseling; how the school counselor works. Effective procedures for interviewing and counseling students including implications for school social work.

7691. **Supervised Practicum in Guidance and Counseling in the Secondary School.** (3).

(formerly Supervised Practicum School Guidance and Counseling)

Supervised application of the principles and methods of guidance derived from professional preparation for school counselors: standardized tests, records and personal data, educational and occupational information, personal and group counseling and interview techniques. Minimum: 45-135 clock hours. PREREQUISITE: Consent of instructor.

- 7692. Supervised Practicum in Guidance and Counseling in the Elementary School. (3).**
- 7993. Special Problems in Guidance. (1-3).**
Individual investigation and report in the area of guidance under the direction of a faculty member.
- 8611. Student Personnel Services in Higher Education. (3).**
The course will analyze the activities, functions, relationships and philosophy of the Dean of Students, Dean of Men, Dean of Women, and the Directors of housing, activities, scholarship and loans, admissions and records, health services, and the counseling center.
- 8621. Guidance for the Student with Special Characteristics. (3).**
Characteristics of the culturally deprived, the gifted, and the under-achieving student will be discussed. The course will emphasize approaches and problems of assisting these students in emotional development and in educational and vocational planning. A project with students in one of the above classifications will be required. **PREREQUISITE:** Fifteen semester hours of course work in guidance and personnel services.
- 8671. Operation of Guidance and Personnel Services. (3).**
This course will consider the problems of the guidance or personnel services staff member who is responsible for administering the program. Attention will be given to the services themselves and to the principles, techniques, planning, organizing, staffing, directing, and budgeting of these services. **PREREQUISITE:** Fifteen semester hours of course work in guidance and personnel services.
- 8681. Seminar in Counseling and Personnel Services Research. (3).**
This course is designed to give the advanced graduate student in guidance and personnel services the opportunity to explore present research and research methodology in areas of current importance and personal interest and to begin to carry out research of his own. **PREREQUISITE:** Fifteen semester hours of course work in guidance and personnel services.
- 8693. Supervised Practicum in Student Personnel Services in Higher Education. (3-6).**
Supervised experiences in one or more of the following areas: residence halls, activities, admissions, records, organizations, financial aids, and administration. A seminar will be included. **PREREQUISITE:** Twelve semester hours of courses in guidance and personnel services. (Course may be repeated for a maximum of 9 semester hours.)

LIBRARY SERVICE

PROFESSOR RODNEY TILLMAN, *Chairman*
Room 417, The College of Education Building

In Library Science, only a collateral area may be taken. A total of 9 semester hours, as approved by the adviser, are required.

- 6231. Organization of Materials. (3).**
Includes instruction and practice in simplified procedures for acquisition, preparation, organization and circulation of books and related library materials, such as pamphlets, periodicals and audio-visual aids.

6232. Cataloging and Classification. (3).

Introduction to principles underlying the classification of books and simplified techniques of cataloging books and other materials. The abridged Dewey Decimal Classification scheme is used and the use of printed cards is stressed.

6331. School Library Administration. (3).

The library is treated as a service agency in this course. Emphasis is given to the place of the library in the instructional and guidance program of the school and to the philosophy and purposes of libraries and librarianship. Included are such problems as standards and evaluation, public relations and publicity, support, housing and equipment, training of assistants and library study hall relationships. Field trips are made to different types of libraries.

HEALTH, PHYSICAL EDUCATION, AND RECREATION

PROFESSOR RALPH L. HATLEY, *Chairman*
Room 211, Field House

In the department of Health, Physical Education, and Recreation, graduate students may place a major emphasis in the areas of Health, Physical Education, or Recreation.

Prerequisites: A minimum of 24 undergraduate semester hours of Health, Physical Education, or Recreation, or a combination thereof is required for unconditional admittance.

Requirements: A total of 33 semester hours is needed for graduation, of which, 21 semester hours are required for major emphasis area, nine semester hours in the collateral area, and three semester hours elective.

The required 21 semester hours for each major emphasis area are as follows:
Health—HPER 6602, 6702 or 6302, 6902, 7124, 7132, 7142, and 7204.

Physical Education—HPER 7103, 7124, 7132, 7142, 7204, 7404, and 7603 or 7314 or 7144.

Recreation—HPER 7132, 7142, 7204, 7305, 7404 or 6204, 7405, and 7505.

The course HPER 7996 may be substituted for HPER 7132 or 7142.

The successful completion of an oral and/or written examination is required.

A written or oral examination may be requested by the department in which the collateral area has been chosen.

Minimum state teacher certification requirements must be met either prior to or during the period of regular graduate work in either Health or Physical Education. In the area of Recreation this certification does not apply.

For the collateral area, 9 semester hours as approved by the adviser, 3 semester hours of which must be selected from the following two courses:

P.E. 7124—Curriculum Construction in Health Education and Physical Education (3).

P.E. 7144—Development and Supervision of an Elementary School Health and Physical Education Program (3).

6204. Test and Measurements in Health and Physical Education. (3).

A study of the various tests in the field of health and physical education, including uses and interpretation of elementary statistical techniques.

6205. Supervised Clinical Training in Recreation Therapy. (6).

Supervised clinical training in the Recreational Therapy Department of the Physical Medicine and Rehabilitation Service at the Memphis V. A. Hospital. Instruction will be given in arts and crafts, radio, television programming, social activities, adapted sports, music, allied ward and clinic activities for patients and varied illnesses and disabilities.

6302. Observation in Community Agencies. (3).

This course is planned to introduce the student to a wide variety of community health and welfare agencies. Opportunity to visit in official and volunteer agencies is provided. Purpose, objectives, functions and programs are presented by representatives in each agency. Application for the course should be made at least 60 days before the student desires to enroll in the course. **PREREQUISITE:** Permission of Chairman of Department.

6403. Supervised Clinical Training in Corrective Therapy. (6).
(formerly Clinical Practice)

Supervised clinical practice in the Department of Physical Medicine and Rehabilitation Service at the Kennedy V. A. Hospital. Instruction will be given in the conditioning, ambulation and self-care of patients with neurological, pulmonary, geriatric, neuropsychiatric, speech, blind, spinal cord injuries, cardiac, and other types of disabilities.

6405. Organization and Administration of Recreation. (3).

An understanding of community organization, its philosophy, foundation and principles. An understanding of selected administrative practices that relate to successful recreational organization and administration.

6503. Organization and Administration of Health and Physical Education. (3).

A study of administrative problems of health and physical education, including curriculum, facilities, buying and caring for equipment, general class organization, and organization of an intramural program.

6602. Supervision and Administration in Health. (3).

A study of the basic functions, principles and procedures of supervision and administration as applied to health. Emphasis is placed on the relationship and responsibilities of personnel in planning, promoting, and improving and evaluating the total health activities in the family-centered health services. Legal and legislative aspects of health activities are included.

6702. Trends and Problems in Public Health. (3).

A review of the historical development and current trends in professional nursing as a community service; the various needs and demands for medical care; the contribution of the professional personnel in providing for total health services and education.

6902. Health Statistics. (3).

A study of the statistical method including collection, analysis and presentation of numerical data pertaining to health problems.

- 7103. Foundations of Physical Education. (3).**
The interpretation of the objectives of physical education as related to scientific facts contained within the biological, psychological, and sociological fields of study.
- 7124. Curriculum Construction in Health Education and Physical Education. (3).**
Consideration is given to the entire program of instruction in health education and physical education in the public schools; methods of instruction, standards of achievement, evaluation of results, and the preparation of courses of study.
- 7132. Current Readings in Health, Physical Education, and Recreation. (3).**
Directed independent reading in the areas of Health, Physical Education, and Recreation. Materials selected to strengthen deficient areas of study. **PREREQUISITE:** Consent of instructor.
- 7134. Supervision of Health and Physical Education. (3).**
The purpose of this course is to present and discuss the duties and problems of the supervisor of health and physical education in the school and community.
- 7142. Seminar in Health, Physical Education, and Recreation. (3).**
Special study of selected current problems in these areas. For the most part, individual studies will be pursued with group analysis and discussion at regular class meetings. **PREREQUISITE:** Consent of instructor.
- 7144. Development and Supervision of an Elementary School Health and Physical Education Program. (3).**
Consideration is given to the entire program of instruction in health education and physical education in the elementary schools; methods of instruction, standards of achievement, organization and supervision of the program. (Intended for elementary school teachers as well as principals and supervisors).
- 7152. Special Problems in Health Education. (1 to 3).**
This course is designed to afford opportunity for prospective or in-service school and professional personnel to work individually or in groups in carrying out a research project.
- 7153. Special Problems in Physical Education. (1 to 3).**
This course is designed to afford opportunity for prospective or in-service school and professional personnel to work individually or in groups in carrying out a research project.
- 7204. Introduction to Research in Health and Physical Education. (3).**
A study is made of the various methods and techniques of research. A potential problem is selected, analyzed and written according to research standards.
- 7305. Foundation of a Philosophy for American Recreation. (3).**
Deals with the development of a recreation philosophy for America. Studies the social and economic factors that have influenced leisure and concepts of recreation.
- 7404. Measurement and Evaluation in Health and Physical Education. (3).**
This course includes selection, application and evaluation of certain tests appropriate to these areas.

7405. Program Planning in Recreation. (3).

A study of the needs, interests, and problems of people with specific reference to age. A study of social forces affecting recreational planning and programming. Development of an understanding of the principles of program planning, development, and management, including organization, direction, and supervision.

7505. Administration and Supervision of Park and Municipal Recreation. (3).

(formerly Organization and Administration of Group Recreation)

A study of the development of the recreational movement. Principles and practices in the administration of a wholesale leisure-time program and the place of the school and its personnel in community recreational life.

7603. The Administration of Athletics. (3).

For athletic directors, supervisors, athletic coaches and principals. A study of representative athletic administrative procedures for colleges, public school systems, and municipal athletic leagues. Fiscal procedures and business management are stressed.

7702. Health Education in Organic and Functional Diseases. (3).

The cause, the prevention and the public health aspect of control of certain organic and degenerative diseases are studied. Stress is placed on educational methods of overcoming public attitudes of fear, superstition, apathy and misconceptions surrounding such conditions as diabetes, heart disease, cancer, mental illness and geriatrics.

7902. Health Guidance and Counseling. (3).

A study is made of the role and the techniques of the guidance counselor employed to assist individuals to recognize direct personal health problems which arise from physical, emotional and social causes; and to use effectively scientific health facilities in the solution of these problems. Procedures for establishing and using confidential records and referral to professional guidance and rehabilitation agencies are investigated.

7996. Thesis. (3-6).

Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Dean of The Graduate School.

SPECIAL EDUCATION

PROFESSOR LEO J. KELLY, *Chairman*
Room 401, The College of Education Building

A student seeking a Master of Education degree in Special Education is required to complete a core sequence of nine semester hours. This core consists of:

Education 7001, 7511 and 7521

Additional requirements are as follows:

1. Master of Education in Special Education (Mental Retardation)
Courses required: Special Education *6151, *6162, *6163, *6164 or *6165, 7151, 7161, 7162 and three semester hours of electives. Total 33 semester hours.
2. Master of Education in Special Education (Crippled and Special Health Problems)

Courses required: Special *6151, *6152, *6162, *6172, *6781, 7151, 7152, and three semester hours of 7000 level special education electives. Total 33 semester hours.

6151. Education of Exceptional Children. (3).

A survey course which deals with the general problems involved in education of exceptional children.

6152. Working with Parents of Exceptional Children. (3).

This course is designed to teach the techniques which an educator might use in communicating with parents of exceptional children. It covers various means of interpreting school programs and handicapping conditions to parents in order to get maximum home reinforcement of the attitudes, skills and knowledge taught in school.

6162. Education of the Brain-Injured and Cerebral Palsied Child. (3).

A study of the neurological mechanisms; the types of aphasia and their educational implications and adjustments; the types of cerebral palsy and their educational implications and remedies by use of special methods and materials; other physiological impairments (such as encephalitis) frequently encountered by teachers of special education; an investigation of the most satisfactory educational approaches to the rectification of these conditions.

6163. Introduction to Mental Retardation. (3).

A study of the historical treatment of the mentally retarded, as well as etiology and characteristics of the mentally retarded. Methods of diagnosing, placing and working with mentally retarded pupils will be covered from the view-point of an interdisciplinary approach.

6164. Curriculum Development and Techniques of Teaching Elementary Educable Mentally Retarded Children. (3).

This course is designed to give background information in curriculum approaches that have been used in teaching mentally retarded. There is a stress placed on the principles of curriculum development in order to encourage the coordination which is so important in developing a sequentially-related curriculum at the pre-school, primary, and intermediate levels. The approach advocated in this course will be centered around the construction and teaching of experience-centered units.

6165. Curriculum Development and Techniques of Teaching Secondary Educable Mentally Retarded Children. (3).

A course stressing the development of an experience-centered unit approach to teaching educable mentally retarded children at the Junior High and Senior High levels. Vocational assessment, working with other disciplines, personal development and strengthening deficiencies will be emphasized in the curriculum development.

6166. Programing for Trainable Mentally Retarded Children. (3).

This course covers diagnosis, classification, development of teaching materials and techniques as well as working with community organizations in relation to a public school, private school, community center or institutional program for trainable mentally retarded children.

6171. Education of Hospitalized and Homebound Children. (3).

This is an orientation to the general and specific problems of the hospitalized and homebound child.

6172. Educational and Medical Aspects of Crippling and Special Health Conditions. (3).

This course consists of a detailed study of the various types of physically disabling conditions (poliomyelitis, cleft palate, arthritis, measles, and other commonly injurious conditions) which cause either temporary or permanent decreases in educational proficiency. Special methods of instruction for these health conditions would be studied along with suitable adaptations of materials for such afflicted children within the framework of the public school organization.

6173. Introduction to Social Case Work. (3).

This is an introductory course designed to acquaint the student with the concepts and principles underlying social case work.

6174. Supervised Clinical Training in Educational Therapy. (6).

Practical application of educational activities in the rehabilitation of patients with neuropsychiatric, orthopedic, neurological cardiac, pulmonary, and other general disabilities; included are such procedures as Braille, speech therapy, general educational development, literary training, and other vocational subjects.

6175. Principles and Procedures of Rehabilitation. (3).

A panorama of the principles and procedures of rehabilitation necessary for developing and coordinating community resources for the disabled.

6181. Methods and Materials for Teaching Visually-Handicapped Children. (3).

A course primarily designed for teachers of the partially-seeing and blind within the framework of public schools, consisting of study in the growth and development of visual imbalance, and the environment and educational implications of visual problems; the historical background of special programs in the education of the visually-handicapped, and the adaptation of educational methods and materials to the teaching of such handicapped children.

6182. Introduction to the Teaching of Braille. (3).

A course designed to give the basic fundamentals in Braille instruction, including the introduction of equipment for Braille writing, development of skill in the use of such equipment, the history and development of Braille and other instructional procedures for the blind, and mastery of the Nemeth Code of Mathematics, three-dimensional bulletin boards and equipment, and practicum in the use of these materials.

6192. Education of the Acoustically Handicapped Child. (3).

A course which emphasizes methods of teaching content subjects to deaf and hard-of-hearing children. The utilization of visual and auditory aids is included while special recognition is given the integration of the language arts with instruction of content materials.

6781. Workshop for Teaching Perceptually Handicapped Children. (3).

A workshop for teacher-training in the area of perceptually handicapped children (brain-injured, non-retarded), who demonstrate a learning and/or behavioral disorder, due to a minor or moderate neurological impairment.

6881. Supervised Practicum with the Educable Mentally Retarded. (3).

(formerly Student Teaching with the Educable Mentally Retarded)
Orientation, observation, teaching with mentally retarded pupils. PRE-REQUISITE: Education 4821 or 4822.

- 6882. Supervised Practicum with Pupils Who Have Crippling and Special Health Conditions. (3).**
(formerly Student Teaching with Pupils who have Crippling and Special Health Conditions.)
Orientation, observation, teaching with pupils who have crippling and special health conditions. PREREQUISITE: Education 4821 or 4822.
- 6883. Supervised Practicum with Trainable Mentally Retarded. (3 or 6).**
Orientation, observation, and teaching with trainable mentally retarded pupils. PREREQUISITES: Special Education 4151, 4163, and 4166.
- 7151. Administering and Supervising Public School Special Education Programs. (3).**
This course deals with the major areas of school administration and supervision as they relate to special education. It is designed to prepare special educators to work with placement, in-service training, and supervision of professional personnel, organization of programs, financing and budgeting, physical plant facilities and working with related agencies.
- 7152. Assessment of Exceptional Children. (3).**
A course in which the tests unique to assessing the developmental level and the potential achievement of exceptional children are examined. Emphasis is placed on the use of them for selection and placement of exceptional children in special education programs.
- 7153. Practicum in the Assessment of Exceptional Children. (3).**
Supervised practice in administering, scoring and relating results of tests that are used for selection and placement of exceptional children in special education programs. PREREQUISITE: Education 7152.
- 7161. Advanced Theory in Curriculum Development for the Mentally Retarded. (3).**
A course to teach the theoretical and philosophical foundations for the experience-centered curriculum for the mentally retarded. Research will be studied and evaluated. Issues will be debated and proposals for curricular approaches will be presented and defended.
- 7162. Vocational Rehabilitation of Mentally Retarded Youth. (3).**
This course is constructed to emphasize the educator's function in vocational rehabilitation of mentally retarded youth. It will cover the planning of vocational experiences in the school and out of school settings, the problems of a school vocational counselor placing and supervising his pupils in job training situations, the working with other disciplines and agencies in the community in order to bring about a follow up when the pupil needs help after leaving school.
- 7246. Teaching Reading to Exceptional Children. (3).**
(See Reading).
- 7994. Special Problems in Special Education. (1-3).**
Individual investigation and report in the area of Special Education under the direction of a faculty member.
- 8151. Trends in Special Education. (3).**
A critical analysis of influence, issues and trends in Special Education. This course is designed to prepare leaders in the field of Special Education to be aware of and able to cope with issues and changes as they occur in the field.

8152. Seminar in Special Education Research. (3).

A course designed for people who serve as resource personnel in Special Education. Studies and research pertaining to the education of exceptional children are critically examined and conclusions as to use and value are made in the view of the major problem areas in the field. The procedures for conducting and reporting research are also studied and compared.

8161. Socio-Cultural and Biological Aspects of Mental Retardation. (3).

A course dealing, in depth, with the current thinking concerning the etiology of mental retardation. Emphasis will be placed upon prevention, treatment and education as important components which our society must recognize when dealing with mental retardation.

8162. Educational Aspects of Mental Retardation. (3).

A course designed to study the educational aspects mental retardation as revealed through research and practical methodology. A critical examination of theories dealing with learning, perception, brain injury, and deprivation, as they relate to mental retardation, will be carried out.

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ENGINEERING AND APPLIED SCIENCE

PROFESSOR SILVIO J. SPIGOLON, *Chairman*
Room 215, The College of Education Building

In the division of Engineering, graduate students will consult their assigned advisers as to a program of study. To be eligible to enroll, the student must hold a degree in Engineering from an accredited institution, or meet the alternate requirements. The alternate plan requires a baccalaureate degree with emphasis in mathematics, physical science, and applied science. Such students should expect to be required to complete a number of undergraduate prerequisite courses in addition to their graduate programs. Students may concentrate their work in one of the following fields:

- A. Civil Engineering
- B. Electrical Engineering
- C. Mechanical Engineering

The Departmental Chairman or the major professor will provide detailed information upon request.

Engineering may be used as a collateral area provided the student has the necessary undergraduate prerequisites.

6061. Materials Science I. (4).

Study of the structure and properties of engineering materials using solid-state physics and crystallography; elements, structure, alloys; mechanical, electrical, and thermal properties.

Three lecture, three laboratory hours per week.

6062. Materials Science II. (4).

A continuation of 6061.

Three lecture, three laboratory hours per week.

7001. Engineering Analysis I. (3).

Review of mathematical methods for application to civil, electrical, and mechanical engineering; introduction to analog and digital computers.

Three lecture hours per week.

7002. Engineering Analysis II. (3).

Analysis of unsteady-state systems; lumped systems for digital computation; distributed systems for analog computation. PREREQUISITE: 7001.

Three lecture hours per week.

7011. Statistical Methods in Engineering. (3).

Basic statistical theory, significance tests, sampling theory and correlation analysis applied to problems in engineering and science.

Three lecture hours per week.

7012. Probabilistic Methods in Engineering. (3).

Uses of information Theory; Symbolic Logic, Bayes Theorem, Principle of Maximum Entropy, applied to problems in reliability, decision theory and engineering design with limited data. PREREQUISITE: 7011 or equivalent.

Three lecture hours per week.

7101. Soil Mechanics. (3).

Physico-chemical basis of soil structure; identification and classification; permeability; compressibility; strength; applications.

Two lecture, three laboratory hours per week.

7102. Applied Soil Mechanics. (3).

Applications of theory to practical design of building foundations; retaining walls, hydraulic structures and machine foundations.

Two lecture, three laboratory hours per week.

7201. Molecular Engineering. (3).

Applications of materials science to conductors and semi-conductors.

Three lecture hours per week.

7202. Applied Molecular Engineering. (3).

Continuation of 7201 with emphasis on modern solid state devices such as masers, lasers and micromodules.

Three lecture hours per week.

7211. Electromagnetic Field Theory. (3).

Advanced studies in electromagnetic fields, radiation and propagation of energy.

Three lecture hours per week.

7212. Wave Propagation in Plasma. (3).

Propagation of electromagnetic waves in homogeneous and inhomogeneous plasmas. Analysis of cold and hot plasma dispersion relations. Plasma oscillations, Landau damping and energy transfer relations.

Three lecture hours per week.

7213. Antennas. (3).

Physical principles of radiation, directive radiation, antenna currents, impedance, reciprocity and equivalence; general theory of linear antennas, linear antenna systems and special antennas.

Three lecture hours per week.

7221. Microwave Engineering. (3).

Generation, detection and measurement of microwave energy, analysis of electromagnetic wave propagation in uniform rectangular and cylindrical wave guides, cavity resonators, magnetic materials in microwave applications, millimeter waves.

Three lecture hours per week.

7222. Microwave Electronics. (3).

Analysis of electron beams and their interaction with travelling waves, backward waves and crossed fields. Introduction to coupled mode analysis and design of travelling wave tubes.

Three lecture hours per week.

7231. Transistor Circuit Design. (3).

Small and large signal amplifier design, cascaded amplifiers, stability and feedback, pulse circuits.

Three lecture hours per week.

7240. Analysis and Design of Linear Networks. (3).

Analysis of two port networks, ideal response characteristics, synthesis of passive networks, and equivalent circuit representation of active networks. PREREQUISITE: Graduate standing and permission.

- 7241. Network Synthesis. (3).**
Introduction to the modern network synthesis techniques. Synthesis using ladder networks, lossy elements and iterative methods.
Three lecture hours per week.
- 7251. Random Signals and Noise. (3).**
Statistical methods for describing and analyzing random signals and noise. Autocorrelation, cross-correlation and spectral density functions. Optimal linear filter theory. PREREQUISITE: Graduate standing and permission.
- 7252. Information Theory. (3).**
Introduction to entropy and channel capacity, group codes, block codes, cyclic codes. Application of coding techniques to improve system reliability. Error correcting codes. PREREQUISITE: 7251 or permission.
- 7261. Logical Design and Switching Circuits. (3).**
Analysis and design of switching circuits; logic, number systems, digital computer components, synthesis of sequential switching circuits. PREREQUISITE: Graduate standing and permission.
- 7262. Introduction to Finite Automata Theory. (3).**
Finite-state sequential machines, neutral networks, man-machine systems, pattern recognition, language structures, and probabilistic automata theory. PREREQUISITE: 7261 or permission.
- 7305. Advanced Topics in Fluid Flow. (3).**
A general development of the basic equations, followed by the fundamentals of perfect fluid theory. Mathematical, numerical, graphical and analog methods for solving ideal flow problems. Viscous fluid theory and introduction to boundary layer theory. Applications to unsteady flows, in rotating systems and flow of a density-stratified fluid. Review of mathematical concepts involved in these topics. PREREQUISITE: EAS 4011 or equivalent.
- 7306. Advanced Topics in Fluid Flow. (3).**
Continuation of EAS 7305.
- 7310. Fluid Power Engineering. (3).**
Hydraulic- and Air-Flow in pipes. Pneumatic and hydraulic fluid power-elements and-systems. Input-Output energy transfer devices.
- 7311. Advanced Fluid Flow I. (3).**
Basic equations and perfect fluid theory. Mathematical, numerical, graphical and analog methods for solving ideal flow problems. Viscous fluid theory and introduction to boundary layer theory. Unsteady flow, flows in rotating systems and density-stratified flow. PREREQUISITE: EAS 4011 or equivalent.
- 7312. Advanced Fluid Flow II. (3).**
Continuation of EAS 7311.
- 7321. Advanced Heat Transfer. (3).**
Steady and unsteady state. Walls and heat exchanges. Analog computation.
- 7322. Psychrometric Analysis. (3).**
Psychrometrics. Heating, air conditioning, refrigeration.

- 7331. Advanced Thermodynamics I. (3).**
Classical Macroscopic engineering thermodynamics. PREREQUISITE: EAS 4021 or equivalent.
- 7332. Advanced Thermodynamics II. (3).**
Classical and statistical engineering thermodynamics. PREREQUISITE: EAS 7331.
- 7341. Space Engineering. (3).**
Jet and rocket propulsion, power, heat transfer, orbits, control.
- 7342. Dimensional Analysis. (3).**
Units, dimensionless numbers. Applications to combustion, fluid dynamics and heat transfer. Similarity and model theory.
- 7351. Nuclear Applications. (3).**
Power generation, Peaceful uses of nuclear energy.
- 7352. Nuclear Defense. (3).**
Effects nuclear weapons. Civil Defense. Shelter Design.
- 7401. Foundation Engineering. (3).**
Critical study of foundation design of completed projects using case records; emphasis on failures and performance records.
Three lecture hours per week.
- 7411. Advanced Soil Mechanics. (3).**
Basic theory and status of current research; applications to foundation problems.
Three lecture hours per week.
- 7421. Dynamics of Bases and Foundations. (3).**
Design of foundations against impact and forced vibrations.
Two lecture, three laboratory hours per week.
- 7431. Flow of Fluids Through Porous Media. (3).**
Fluid seepage and underflow problems; filtration; groundwater flow.
Three lecture hours per week.
- 7441. Advanced Mechanics of Materials. (3).**
Unsymmetrical bending and torsion of flexural members of non-circular cross-section, beams on elastic foundations and other selected topics, deformation beyond the elastic limit, theories of failure.
Three lecture hours per week.
- 7445. Theory of Continuous Media. (3).**
Analysis of stress and deformation at a point; derivation of the fundamental equations in Cartesian tensor notation by application of the basic laws of conservation of mass, energy, and momentum in mechanics and thermodynamics. PREREQUISITE: Consent of instructor.
- 7451. Experimental Stress Analysis. (3).**
Application of electric resistance strain gage, photoelasticity and brittle lacquer techniques to the solution of stress analysis problems.
Two lecture, three laboratory hours per week.
- 7503. Advanced Structural Design I. (3).**
Behavior of reinforced concrete structures; ultimate designs, yield line analysis of slabs. Prestressed concrete structures.
Three lecture hours per week.

7504. Advanced Structural Design II. (3).

Plastic design of metal structures; multiple-story steel structures. Orthotropic plate bridges.

Three lecture hours per week.

7505. Analysis and Design of Plate and Shell Structures. (3).

Analytical theory of shells of revolution, folded plates and cylindrical shells. Design of plate and shell structures in reinforced and pre-stressed concrete.

Three lecture hours per week.

7511. Advanced Structural Analysis. (3).

Formulation of classical and energy methods for the analysis of statically indeterminate structures. Stress analysis and influence lines. Selected numerical analysis techniques and compiler programming.

7512. Matrix Analysis of Structures. (3).

Matrix algebra. Matrix force and displacement methods and introduction to Kron's method of tearing. Linear graph applied to structural analysis.

Three lecture hours per week.

7514. Structural Dynamics (3).

Free vibration of systems with one and more degrees of freedom. Vibrations of continuous systems. Normal modes and their use in finding the response of structures to transient forces. Analytical, numerical and matrix methods. Analog simulation.

Three lecture hours per week.

7521. Servomechanisms I. (3).

Mathematical description of linear, closed loop automatic control systems; representation by transfer function; stability analysis using various methods.

7522. Servomechanisms II. (3).

Non-linear automatic control systems; analysis by statistical methods and introduction to sampled data control systems.

7991. Projects I. (3).

Independent investigation of a problem selected in consultation with instructor; report required.

Nine laboratory hours.

7992. Projects II. (3).

Independent investigation of a problem selected in consultation with instructor; report required.

Nine laboratory hours.

7993. Projects III. (3).

Independent investigation of a problem selected in consultation with instructor; report required.

Nine laboratory hours.

7994. Projects V. (3).

Independent investigation of a problem selected in consultation with instructor; report required.

Nine laboratory hours.

7996. Thesis. (6).

GEOLOGY

PROFESSOR ANTHONY CARIANI, *Chairman*
Room 313, Ellington Hall

In the division of Geology, graduate students who select Geology as a major area will consult their major advisor as to the program of study; however, Geology 7996 is required of all those who major in Geology.

For the collateral area, 9 semester hours, as approved by the adviser, are required.

6121. Optical Crystallography. (4).

The principles and methods of study of optical crystallography. The use of the polarizing microscope in the identification of minerals by the immersion method. PREREQUISITE: Consent of instructor.

Two lecture, four laboratory hours per week.

6322. Microscopic Petrology. (4).

Classification, description, and thin-section study of rocks by means of the petrographic microscope. PREREQUISITE: Geology 6121.

Two lecture, four laboratory hours per week.

6332. Introduction to Geochemistry. (3).

Study of the geological and chemical processes which govern or control the migration and distribution of the elements and atomic species of the earth in space and time. PREREQUISITE: Consent of instructor.

Three lecture hours per week.

6411. Micropaleontology. (3).

A study of microscopic fossils. Morphology, classification, evolution, and stratigraphic distribution of some of the more common groups. Photography and laboratory techniques in preparing micro-fossils for study. PREREQUISITE: Consent of instructor.

Six laboratory hours per week.

6511. Economic Mineral Deposits. (3).

Origin, occurrence, and composition of metallic and non-metallic mineral deposits. PREREQUISITE: Geology 2312 and 2512 (Mineralogy).

Three lecture hours per week.

7211. Geology of Eastern North America. (3).

Stratigraphic and structural development of Eastern North America. Reports, discussions, and lectures. PREREQUISITE: Geology 1201 (Historical Geology).

Three lecture hours per week.

7212. Geology of Western North America. (3).

Stratigraphic and structural development of Western North America. Reports, discussions, and lectures. PREREQUISITE: Geology 1201 (Historical Geology).

Three lecture hours per week.

7321. X-Ray Diffraction Techniques. (3).

The application of x-ray diffraction techniques to crystallographic problems. PREREQUISITE: Consent of instructor.

One lecture, four laboratory hours per week.

7331. Advanced Geochemistry. (3).

Study of selected topics, particularly mineral phase equilibria, geochronology, trace element and isotope distribution. PREREQUISITE: Geology 6332 or consent of instructor.

Three lecture hours per week.

7340. Clay Mineralogy. (3).

The origin, occurrence and properties of well-crystallized and fine-grained layer silicates and related minerals are discussed in terms of their chemical and structural variations. PREREQUISITE: Consent of instructor.

7360. Advanced Study in Mineralogy and Crystallography. (1-4).

Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged.

7370. Advanced Study in Petrology. (1-4).

Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged.

7411. Advanced Micropaleontology. (3).

Taxonomy, morphology, ecology and stratigraphic distribution of microorganisms with emphasis on the Foraminifera and the Ostracoda. PREREQUISITE: Geology 6411 or consent of instructor.

Six laboratory hours per week.

7421. Stratigraphic Paleontology. (3).

Discussion of paleoecologic and biostratigraphic principles and ideas. PREREQUISITE: Consent of instructor.

Three lecture hours per week.

7440. Advanced Study in Paleontology. (1-4).

Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged.

7510. Advanced Study in Geotectonics. (1-4).

Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged.

7551. Mineralography. (3).

Identification of ore minerals in polished sections by microchemical tests under the ore microscope. Interpretation of the textural relations and the determination of paragenesis. PREREQUISITE: Consent of instructor.

Six laboratory hours per week.

7631. Seminar in Geology. (1).**7641. Seminar in Geology. (1).****7651. Seminar in Geology. (1).****7661. Seminar in Geology. (1).****7996. Thesis. (6).**

TECHNOLOGY

ASSOCIATE PROFESSOR W. T. BROOKS, *Director*
Room 100, Technology Building

6470. Production Control. (3).

(Also offered as Management 6520)

A study of the elements of production and their coordination.

PREREQUISITE: Technology major or minor.

6480. Plant Layout. (3).

(Also offered as Management 6530)

A study of industrial and educational plants, with emphasis on floor plans and placement of facilities. PREREQUISITE: Technology major or minor.

6490. Time and Motion Analysis. (3).

(Also offered as Management 6540)

A study of work simplification techniques, including analysis of jobs and trades. PREREQUISITES: Technology 6470 and Technology major or minor.

INDUSTRIAL ARTS EDUCATION

Industrial Arts Education is a separate area of the Division of Technology. In the area of Industrial Arts Education, only a collateral may be selected.

At least 12 semester hours are required: Industrial Arts Education 7294, 7596, and 6 hours, as required by the adviser, from the following: Industrial Arts Education 7498; Education 7601 and 6741.

7204. History and Philosophy of Industrial Arts Education. (3).

The historical development of industrial arts education; types of programs, philosophies, and trends as related to the total school program.

7498. Curriculum Building in Industrial Arts Education. (3).

Theoretical background and experimental approach to curriculum improvement in industrial arts on the elementary, junior and senior high school levels.

7596. Current Trends and Issues in Industrial Arts Education. (3).

Investigation of current laboratory arrangements, materials, supplies and methods in instruction compatible with the industrial arts program.

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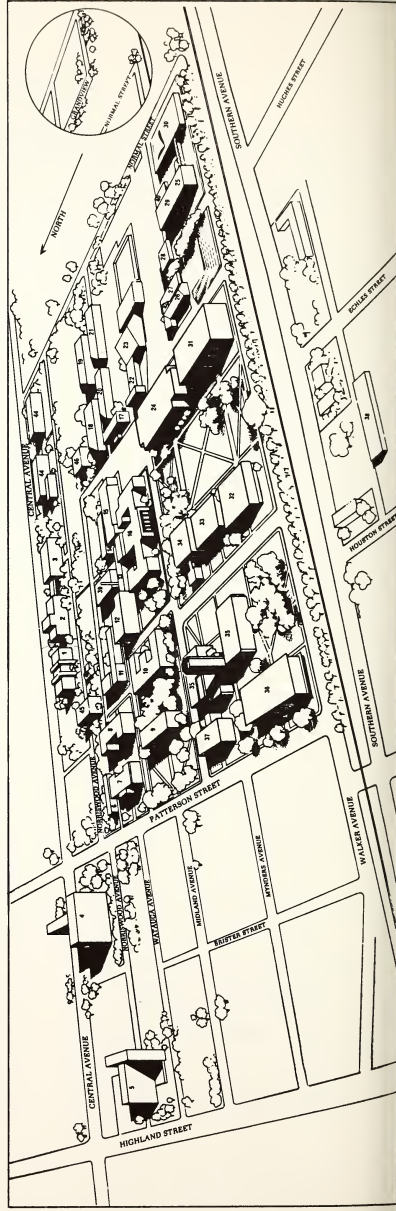
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11. Industrial Technology Building
12. Jones Hall
13. The Cafeteria
14. Maintenance Building
15. Manning Hall
16. Administration Building
17. Scates Hall
18. McCord Hall
19. Browning Hall
20. Hayden Hall
21. Robison Hall
22. Old Gymnasium (WKNO-TV)
23. The Field House
24. University Center
25. Engineering Library
26. Engineering Annex

27. University Bookstore
28. Engineering Mechanics Lab
29. The College of Education Building
30. University Campus School
31. J. Millard Smith Chemistry Building
32. Buford Ellington Biological Sciences Building
33. Frank G. Clement Humanities Building
34. The College of Business Administration Building
35. University Library

36. Malcolm R. Patterson Building
37. Johnson Hall
38. Football Training Building
39. Heating Plant
40. Athletic Office
41. Alumni House
42. Faculty Cafeteria
43. President's Home
44. Engineering*
45. Psychology Building*
46. Student Health Center*

*Completion Expected in 1968.





The Graduate School Bulletin

MEMPHIS STATE UNIVERSITY

Memphis, Tennessee 38111

SECOND CLASS

POSTAGE PAID

AT MEMPHIS

TENNESSEE

